MUSEUM.

FROM THE RETROSPECTIVE REVIEW.

The Cure of Old Age and Preservation of Youth, by Roger Bacon, *a Franciscan Friar; translated out of Latin by* Richard Browne, *M. L. Col. Med. Lond.* 1683.

A Physical Account of the Tree of Life, by Edw. Madeira Arrais. 1683.

Sure Methods of attaining a Long and Healthful Life, with the Means of correcting a Bad Constitution, by Lewis Cornaro; *translated from the Italian.* 1737.

Hermippus Redivivus, or the Sage's Triumph over Old Age and the Grave; wherein a Method is laid down for prolonging the Life and Vigour of Man. 1749.

A Delineation of the particular History of Life and Death, with a view to preserve Health and retard Old Age, by Francis Bacon, *Baron of Verulam, Viscount St. Alban's.* 1778.

We do not know how it may be with our readers; but for our own parts, we confess that we are very willing to *be*—that is, to remain, to exist, as long as circumstances and the fates will permit. We should have no objection to bargain for some five hundred years (we don't like to be unreasonable), provided we might during that time write—and be read. This may seem a little derogatory—a little like an admission of mere, common, human infirmity, which we, of editorial nature, should not be too forward to allow. For an editor, as he is in numerals more than a man, so ought he to be superior in a freedom from the ordinary infirmities—prejudice, ignorance, haste, death, and the like. The only excuse which we have to offer for contesting this position is, that it is—true. Like other people of great pretensions, kings, poets, warriors, philosophers, popular preachers, and inventors of "patent" medicines,—so editors of reviews and magazines die off and decay. The "brief candles" of their lives (from a farthing upwards) shed for a time a little light, and show a good deal of vapouring—they are puffed—they struggle—and at last, like all others, go out. Of course, they leave the world in darkness.

For our own particular parts, having admitted very readily our mortality (Mrs. Malaprop would call it our morality) and frailty, we may the less scrupulously lay claim to some qualities which our readers will be pleased to throw into the opposite scale. We have our weakness (good nature),—but we think, that we are entitled also to some credit for common sense and sincere opinion. We do not certainly wait till every other periodical work has tasted and approved the relish of a book, and then come forth with our own flat speculations on obvious matters, founded upon the wisdom or mistakes of our betters. We do not consider our literary "repository" (to use good Mr.

Ackerman's phrase), as a place of refuge for dull rebuses, and charades which must always remain a riddle. We do not correspond with ourselves, nor insert all the letters we receive, in order to show our own want of wit. We are not (we hope) prolix beyond all our contemporaries, yet eternally falling short of the mark. We do not pique ourselves on possessing an obituary, with every "Thomson" and "Johnson" faithfully set down, their mark and livelihood. (We know that the world does not care to hear of such unprofitable matters.) We have no account of West Lambeth Church. We have no epitaphs, original or from the *Elegant Extracts*, that can beguile, with their bad grammar, the muscles of our readers for a moment. We leave our friends to enjoy the quiet range of all abbeys and parish churches, from the Sid to the Tyne. A mermaid comes to Wapping, a pitchfork is transmuted into Neptune's trident, and of these we have no record.—If our readers can forgive us such omissions, we are content. We will in turn endeavour to lead them now and then from the dusty and beaten road of learning, over green and cheerful paths, "by forest side or fountain," and show them bright things which the growth of later ages has hidden, but which nothing can ever destroy.

Having premised thus much, we will proceed to consider our subject. And here let not the courteous reader, or rather the good matter-of-fact reader, dispute with us at the outset. Let him not deny to our wish of five hundred years its possible accomplishment. We ourselves are not "true believers" in the Eastern fashion. We do not credit all things good, bad, and indifferent. Yet, although we have some lurking doubts about the philosopher's stone, and even the *elixir vitæ*, we believe that something material may be done to prolong our lives, and save our age from the common penalties of pain and premature decay. We do not here refer to Dr. Brodum, who instructs us how to arrive at a *cordial* old age; nor to Dr. Solomon (his gentle spirit will forgive us)—nor to his balm; neither have we in our immediate thoughts (though we respect his labours) Sir John Sinclair, who tells us, that the road to longevity is not paved with hard dumplings, nor watered very plentifully by either whiskey or wine.

Much no doubt may be done for our inveterate lovers of life, by air, and exercise, and diet. The grand nostrums certainly startle us sometimes, as well by their audacity as by the number of exceptions who daily die off in defiance of the perpetual life poured into them. There is no knowing what to do with such rebels against their own immortality. We vent our spleen against them at first; but in the end we are obliged to inquire into the specific. Then our misgiving commences. We discover that there is something (or nothing) in it, which argues against its universal character. We deny its virtues; and from one solitary instance insist upon the incompetency of all possible elixirs. This is not fair dealing. Much less fair is it to go further still, and argue, that life itself is not to be, even by *any* means, prolonged. Proverbs, as well as facts, should teach us better.

"*Senhor, may you live* A THOUSAND YEARS!"—Such used to be a Spaniard's wish; nay it is so even now. It has grown into a proverb. It is hallowed by constant use. Shall we believe that it is merely jocose, chimerical? It may sound a little rhetorical, a little exaggerated; but we have no doubt that it is meant sincerely, and (what is more to the purpose) considered as not utterly impossible.—*May you*

live a thousand years! It sounds like a magnificent blessing, full and musical. What a prodigal utterance must he have had who first spoke it! What an antipathy to arithmetic and fractions! We talk of a fine old age of three-score and ten years—It is contemptible. "What employment have we here," that could be ended so soon? What science could be mastered? what paradox made plain? what star surely tracked in its finer wanderings? what, in short, can we do that is worth doing, in so poor a fragment of time?

Once, our fathers were a mighty people. The men before the flood and after had their thousand years allotted to them, and they were wise and happy. They were patriarchs, and saw through the long file of their generations, blessing and blessed. It is true, that the taint of the first murder was upon them, and all were not free from error; yet it was not with them as with us, who, sickly and degenerate, fall into the earth before our time, and die in the morning of our wisdom. They read the stars, and "commerced with the skies." Heaven opened its bright gates, and disclosed to their seers its wondrous secrets. Dumb nature obeyed them, and spoke. The rock burst, and gave forth its waters. The great sea bared its heart, and let them pass. They had visions radiant as day, gorgeous as the rainbow,—sights, of which words are but the shadow. They had angels for their companions; and they heard the word of God—and lived.

O fortunatos nimium, sua si bona nôrint,
Agricolas!—

The assertions as to the long lives of the patriarchs cannot be explained away on the ground of mere trope or figure; nor even by different methods of calculating time. Neither is it only a Jewish story, credited in Judæa. The old Chaldean, Egyptian, and Chinese authors speak of the great ages of those who lived in early times: and Pliny and Xenophon admit their testimony without hesitation. Whether longevity is to be ascribed to some peculiar providence is another question. Perhaps much may be attributed to simplicity of living, and something to freedom from hereditary disease.—Some of the most learned of the Jews have considered, that a certain term of life was actually fixed by the Creator, beyond which it was impossible to live. The Chaldeans, and perhaps others, believed, that life depended on the stars. The Greeks admitted the unalterable will of fate (this last differs little from our own notions of the prescience of the Deity): but that a *certain term* of three-score and ten or four-score years should be fixed and known as the decree of God, seems hardly consistent with our general ideas either of his wisdom or beneficence.

Whether Nature has so fashioned the crazy tenement of man, that it will endure the storms of a thousand winters, we cannot pretend to say. Here our experience fails us; and theory supplies little but conjecture. But that life may be *improved*, that youth may be prolonged, and age made less infirm, and death retarded, we conscientiously believe. Certain animals are known to outlive the ordinary term of man's life; yet we do not know that any thing has been discovered in their structure to account for such excelling longevity. The stag, the elephant, the eagle, the parrot, the viper, are notorious livers. And in the year 1497, in a fish-pond in Suabia, a carp, of prodigious size, was found, which had in its ear a ring of copper, with these

words in Latin: *I am the first fish that was put into this pond, by the hands of Frederick the Second, governor of the world, the 5th October*, 1230." So that this carp must have lived two hundred and sixty-seven years. In this last case, the parallel may not be quite so straight, as with animals who breathe the same atmosphere with man; though we know of nothing which leads us to suppose, that fishes in general attain a greater age than birds or quadrupeds, living in a different element.

But, lest such instances should be deemed insufficient, we may observe, that there are cases of such extreme longevity among ourselves, as to justify a hope that the ordinary term of life may be at least considerably extended. The most famous physicians, in particular, were also famous livers. Hippocrates lived to the age of 104.—Asclepiades, the Persian, to 150.—Galen, in complete health, to 104. (Such men, the author of *Hermippus Redivivus* justly observes, "*do honour to their profession.*") Besides these, there are instances far more extraordinary, which are tolerably well authenticated. It is recorded, that in Bengal there was a certain peasant who reached the age of 335! In America (beyond the British settlements in Florida) there died some years ago an Indian prince, who had the full use of his faculties and limbs to the last, who remembered the coming of the Spaniards into those parts: he consequently must have been upwards of 200 years old. There is also an account of a man, called Francis Secardi Hongo, who, after marrying successively five wives, and having fifteen or twenty concubines, arrived at the age of 115 years; and another, of some Hungarians who attained respectively the extraordinary ages of 172, 185, and 187 years.

To these facts, many others of a more doubtful nature might be easily added. The stories of the Hermetic philosophers are undoubtedly dashed with enough of the marvellous to justify some incredulity on our parts; yet the lives of many were so pure, and the accounts of others so seriously insisted upon, that we shall do well to pause before we bestow on them our unqualified disbelief, and despise what we cannot learn, for a certainty, to be either false or true. That we should live a thousand years, or even five hundred, seems at first to be a monstrous impossibility. But if a man should assert, that he remembered Oliver Cromwell, we should quite as readily conclude him to be an impostor; and yet, it is tolerably notorious, that some men have actually outlived a century and a half. Old Par died in 1635, aged one hundred and fifty-two years. Lawrence Hutland died in the Orkneys when he was one hundred and seventy; and the famous Countess of Desmond was known to be more than one hundred and forty, at the time of her death.

What is the *cause* of longevity, is undoubtedly very difficult to say. It is impossible to found a system upon the accounts given from time to time of extremely old persons. Some lived in cold and some in hot countries; some rose early and some late; some were temperate, and others free livers. Almost all, however, seem to have used a great deal of exercise, and they lived, we suspect plainly, even when they indulged in spirits, or wine. It is remarkable, that the oldest pensioners in Greenwich hospital appeared to have lived generally in warm countries, while most of the invalid soldiers in Kilmainham barracks passed their lives in cold climates. Again, the instances of long life

in the northern countries are somewhat striking; and yet, the patriarchs lived beneath a burning sky, and tilled an arid soil. One satisfactory conclusion, however, is to be drawn from all this; and with that we must be content. It is, that, however medical writers may assert that heat, or cold, or excess of any sort, tends to accelerate death, yet the frame of man is constructed of such durable materials as to enable it to fight up against all the adversities of circumstance, and to withstand the rigours of all seasons, whether at the tropic or the poles.

Old age is said to be "the only natural disease" inflicted upon human nature. For the rest, we have to thank our own ingenuity; not "the stars." The curries of the East, the sauces of France, the grapes of Portugal and Spain, have been the enemies of man. The sins of the Roman banquets are visited on the heads of their imbecile generation; and we think that our modern apoplexies, and other errors of health, may be traced very distinctly to those enormous "barons of beef" and roasted oxen, upon which our forefathers once fed to satiety. Now, having lost "the substantials," we have nothing to do, but to get speedily thin upon turtle and stewed carp, (we wonder whether our friend of Swabia ended his two hundred and sixty-seventh year in the stew-pan),—and on legs of Welch mutton and other such etherial aliment, (scarce better than the chamelion's) and to begin our race of a thousand years, upon experience of our ancestors' folly.

In the first place, *Moderation* should be carved upon every plate, and should stand out in bright relief on every wine cup. Beaumont and Fletcher were wits and fine writers, but *they did not know where to stop.* They over-past the goal. Their wit ran over and went to waste. They showed plethora rather than strength. It is the same with our friends the aldermen; they are rosy, but not healthy; huge, but not robust. The cold evening winds which meet them (like the scythe of Time) after the city ceremonials, would pass them harmlessly were they temperate at table. But the "sons of Belial" may never aspire to be long livers. The "bottle is the son of *their* table," and its circle is speedily accomplished. Neither should the student exult prematurely over his less worthy brethren. He too is marked out for a brief career. To sit and think and dream of love or heaven is delightful. It is a pity that any penalty should be attached to it. And yet, there is,—he must die. Study, in its excess, is like a fearful spell. It conjures up demons, and hideous phantasmas, legions of grisly shapes, fancies unutterable—things such as trooped

> 'Under the sooty flag of Acheron,
> 'Harpies and Hydras,—'

and others, all armed with the shears of Fate, between which our slender threads sooner or later become entangled. Not only is excess of thought bad; but the mere fact of sitting for a length of time, tends to produce disease, and eventually death. The

> "*Sedet, eternumque sedebit,*"

is all very well. It has been quoted often: yet he who sits much will certainly not sit for ever. He may breakfast with the Houris, and drink, in imagination, his nectar with Jove at noon; but in the evening he must sup with Pluto. He must go where poet and philosopher have gone before him; he must leave his body a meal for the worm,

and shrink into a shadow,—to a name. He must part with all, even his darling books, even (perhaps) his thoughts, and descend like the Assyrian Ninus, from "ceiled roofs, to arched coffins; from living like a god, to die like a man."

—It is now time to give our readers some account of the books at the head of our article; though we have some difficulty in finding for them an extract, either amusing or edifying, except from our friend Hermippus.

Yet, Roger Bacon was an extraordinary man. His wisdom obtained for him the hate of his contemporaries and the reputation of dealing with the devil. He was, in truth, a great light in a dark age,—a fiery pillar, that withered the green follies and dwarf superstitions around him. The light he yielded was for posterity, and it was only from posterity that he could hope for admiration or gratitude. He has, to be sure, been renowned rather for his "brazen head," than for his labours in art and science; yet he is well known by the studious to have been the precursor, in certain paths, of more famous men, who, acting upon his suggestions, have built up for themselves a great renown. He is said, by some, even to have been the inventor of gunpowder. Whether he was or not, or what his meanings are, in fact, is sometimes difficult to say; since he was compelled, by the jealous follies of the time, to wrap up his wisdom in a cloud of mystery. His book on the *Cure of Old Age*, is curious enough. It is not of much value as a medicinal work, of course; but it betrays the state of knowledge at that time, and shows how a wise man, like Bacon, could preserve, in the midst of great accuracy of thinking, certain small superstitions of science. He believes in dragon's blood (and of course in dragons,) in the bones of stags' hearts, and the *aurum potabile;* and discusses the merits of oils which would put Mr. Atkinson and Messrs. Mokrifusky and Prince speedily to the blush. There is the oil of Balm, *Oleum Benedictum;* and that which "by art is *made of bricks*," (we confess we should like to see this tried, were it only in a pantomime;) and there is also the *dragantum* and *albalcae*, which "strip off the grey hairs, and in their stead, do plant black and youthful ones." He adds, however, "I have not tried these things;" and we admire his caution.

In order to give the reader an idea of the style of this book, we will quote one of the shortest chapters, which treats "of things that excite the animal faculty, refresh men's bodies, and quicken motion."

"All wise men that have yet treated of the regiment of health, constantly affirm, that the aged, and men well grown in years, presently after they are risen from sleep, should be anointed with oil; so Royal *Haly*, in his fifth treatise *of the Regiment of Old Men.*

"For such anointing excites the animal faculty, and with it all the rest; for all other faculties depend of and proceed from that, as Avicenna saith in his first canon *Of the Faculties.*

"But with what things this anointing should be made, physicians do very much vary.

"For the son of the Prince Abohaly, in his chapter *of oils*, affirms that all kinds of oil refresh the body, and help its motion; but if all do this, it cannot otherwise choose but that one sort must be better than another.

"Haly, in his treatise *of the Regiment of Old Men*, thinks that old men should be anointed with the oil of squill, and with the oil of violets mixed with the oil of chamomel, and with the oil of dill.

"But Aristotle affirms, in his book *of the secrets of secrets*, that anointing ought to be made with sweet smelling ointments, in the morning, at convenient seasons,

that is, in autumn; and in winter, with ointments made of myrrhe, and with the juice of an herb which is called a blite; in summer and spring time *cum unguento cæsasino* (made with Saunder's) *Enilegio*, and the juice of *Enablatti*; and he affirms this in his canon *of Baths*.

"I shall say nothing of the making of ointments, but that sheep's suet may be mixed with every ointment.

"*Campanus Germanicus*, who lived a long time ago, saith the wise men of India, after scarification, did lay on this very thing with oil of balm.

"The son of the prince, in his canon *of weariness*, when he speaks of balm, saith, it ought to be fortified with wax or pitch, that it may long retain its virtue and operation.

"And thus we see, one oil operates more strongly in old men than another."

If we have any readers qualified for the "*regiment* of old men," we beg them to look to this chapter. There is another too, in which the author bids us, after speaking of Haly and his "*canon of beauty*," to *Take of the flowers of beans, pease, lupines*, &c. &c. This may be agreeable to our fair readers. The man who could make a brazen head speak, may surely compete with the "author" of the "milk of roses."—Besides these, there is an odd chapter about "wines." Bacon says, "that wine and water cheers the heart," and adds, innocently, "which I think is to be *imputed* to the wine, not the water." We think so too. "Avicenna (he says) and Royal Haly are in favour of red wine; but Royal Haly, (also saith) that old and sour wine ought to be avoided." Now, with regard to the sour wine, we agree with him, but with regard to the old, (as Touchstone would say) we do not. We rather incline to Isaac, who thinks, that after a year is over, the goodness and strength of the wine doth begin. As to wine, Bacon seems to recommend it to the old, but not to the young, and at all times in moderation; for he says, "If it be overmuch guzzled, it will do a great deal of harm." We have heard as much ourselves; and we accordingly join in our friend's, the Friar's, counsel of temperance, with respect to this perilous though pleasant liquor. It will, (as he says) "darken the understanding, though it be, itself, as bright as the sun."

—Cornaro was a Venetian. In his youth he had been a reveller, a drinker, a sitter up o' nights; but finding that pleasant system utterly subversive of health, as well as serenity of temper, he gave it up. He grew ill and choleric. Though he was a man of strong brain and stout heart, his head ached and his nerves shook beneath the all-conquering tyranny of wine. The resolution which he had originally possessed, had not entirely forsaken him; and accordingly, by one bold stroke, he cut the links which bound him, and recovered his freedom and his health at once. He then observed great sobriety and a strict regimen in his diet, and lived quietly and cheerfully till he was more than a hundred years old. Cornaro is certainly an amusing, lively writer, and contrives to put you into a state of hope and good-humour. You make excellent resolutions while you read his life. His privations seem nothing,—a little agreeable abstinence; a relaxation from the severer toil of drinking. You have nothing to do but— *refrain*, (what can be easier?) and the hundred years are secured to you.

Our author seems to have had great firmness in adhering to a regular system of diet, which in truth appears to be the principal point which distinguishes him from others. Once, however, his "dearest

friends and relations" overcame him, and this is the consequence of his yielding.

"My dearest friends and relations, actuated by the warm and laudable affection and regard they had for me, seeing how little I ate, represented to me, in conjunction with my physicians, that the sustenance I took could not be sufficient to support one so far advanced in years, when it was become necessary not only to preserve nature, but to increase its vigour. That as this could not be done without food, it was absolutely incumbent upon me to eat a little more plentifully. I, on the other hand, produced my reasons for not complying with their desires. These were, that nature is content with little, and that with this little I had preserved myself so many years; and that, to me, the habit of it was become a second nature; besides, it was more agreeable to reason, that as I advanced in years, and lost my strength, I should rather lessen than increase the quantity of my food: further, that it was but natural to think, that the powers of the stomach grew weaker from day to day, on which account I could see no reason to make such an addition. To corroborate my arguments, I alleged those two natural and very true proverbs; one, that he who has a mind to eat a great deal, must eat but little; which is said for no other reason than this, that eating little makes a man live very long; and living very long, he must eat a great deal. The other proverb was, that what we leave after making a hearty meal, does us more good than what we have eaten. But neither these proverbs, nor any other arguments I could think of, were able to prevent their teasing me more than ever. Wherefore, not to appear obstinate, or affecting to know more than the physicians themselves, but, above all, to please my family, who very earnestly desired it, from a persuasion that such an addition to my usual allowance must preserve the tone of my stomach, I consented to increase the quantity of food, but by two ounces only. So that, as before, what with bread, meat, the yolk of an egg, and soup, I ate as much as weighed in all twelve ounces, neither more nor less. I now increased it to fourteen; and as before I drank but fourteen ounces of wine, I now increased it to sixteen. This increase and irregularity had, in eight days' time, such an effect upon me, that from being cheerful and brisk, I began to be peevish and melancholy, so that nothing could please me; and was constantly of so strange a temper, that I neither knew what to say to others, nor what to do with myself. On the twelfth day, I was attacked with a most violent pain in my side, which held me twenty-two hours, and was succeeded by a terrible fever, which continued thirty-five days, and as many nights, without giving me a moment's respite; though, to say the truth, it began to abate on the sixteenth; but notwithstanding such abatement, I could not, during the whole time, sleep half a quarter of an hour together, insomuch that every one looked upon me as a dead man; but, God be praised, I recovered, merely by my former regular course of life, though then in my seventy-eighth year, and in the coldest season of a very cold year, and reduced to a mere skeleton; and I am positive, that it was the great regularity I had observed for so many years, and that only, which rescued me from the jaws of death."

The reader may now take a specimen of his lively garrulous vein; and learn what may be the amusements of a man at fourscore. To our thoughts, they present a delightful picture. The author would have been a worthy candidate for the philosopher's stone and the *elixir vitæ;* for he seems to have understood the use both of riches and a prolonged life.

"Some sensual, inconsiderate persons affirm, that a long life is no blessing; and that the state of a man, who has passed his seventy-fifth year, cannot really be called life, but death; but this is a great mistake, as I shall fully prove; and it is my sincere wish, that all men would endeavour to attain my age, in order that they also may enjoy that period of life, which, of all others, is the most desirable.

"I will therefore give an account of my recreations, and the relish which I find at this stage of life, in order to convince the public, which may likewise be done by all those who know me, that the state I have now attained is by no means death, but real life; such a life as by many is deemed happy, since it abounds with all the felicity that can be enjoyed in this world. And this testimony they will give, in the first place, because they see, and not without the greatest amazement, the

good state of health and spirits I enjoy; how I mount my horse without any assistance, or advantage of situation; and how I not only ascend a single flight of stairs, but climb up a hill from bottom to top, afoot, and with the greatest ease and unconcern; then, how gay, pleasant, and good humoured I am; how free from every perturbation of mind, and every disagreeable thought; in lieu of which, joy and peace have so firmly fixed their residence in my bosom, as never to depart from it. Moreover, they know in what manner I pass my time, so as not to find life a burden; seeing I can contrive to spend every hour of it with the greatest delight and pleasure, having frequent opportunities of conversing with many honourable gentlemen; men valuable for their good sense and manners, their acquaintance with letters, and every other good quality. Then, when I cannot enjoy their conversation, I betake myself to the reading of some good book. When I have read as much as I like, I write; endeavouring in this as in every thing else, to be of service to others, to the utmost of my power.

"These things I do with the greatest ease to myself, at their proper seasons, in a house of my own; which, being situate in the most beautiful quarter of this noble and learned city of Padua, is, in itself, really convenient and handsome, such, in a word, as it is no longer the fashion to build; for, in one part of it, I can shelter myself from extreme heat; and, in the other, from extreme cold; having contrived the apartments according to the rules of architecture, which teach us what is to be observed in practice. Besides this house, I have my several gardens, supplied with purling streams, in which I always find something to do, that amuses me.

"I have another way of diverting myself, which is, going every April and May, and likewise every September and October, for some days, to enjoy an eminence belonging to me in those Euganean hills, and in the most beautiful part of them, adorned with fountains and gardens; and, above all, a convenient and handsome lodge; in which place I likewise, now and then, make one in some hunting party suitable to my taste and age.

"Then I enjoy, for as many days, my villa in the plain, which is laid out in regular streets, all terminating in a large square, in the middle of which stands the church, suited to the condition of the place. This villa is divided by a wide and rapid branch of the river Brenta, on both sides of which there is a considerable extent of country, consisting entirely of fertile and well cultivated fields.

"Besides, this district is now, God be praised, exceedingly well inhabited, which it was not at first, but rather the reverse; for it was marshy, and the air so unwholesome, as to make it a residence fitter for adders than men. But, on my draining off the waters, the air mended, and people resorted to it so fast, and increased to such a degree, that it soon acquired the perfection in which it now appears; hence I may say with truth, that I have given, in this place, an altar and a temple to God, with souls to adore him. These are things which afford me infinite pleasure, comfort, and satisfaction, as often as I go to see and enjoy them.

"At the same season every year, I revisit some of the neighbouring cities, and enjoy such of my friends as live there, taking the greatest pleasure in their company and conversation; and, by their means, I also enjoy the conversation of other men of parts, who live in the same places; such as architects, painters, sculptors, musicians, and husbandmen, with whom this age most certainly abounds. I visit their new works, I revisit their former ones; and I always learn something which gives me satisfaction. I see the palaces, gardens, antiquities; and, with these, the squares and other public places, the churches, the fortifications, leaving nothing unobserved, from whence I may reap either entertainment or instruction. But what delights me most is, in my journeys backwards and forwards, to contemplate the situation and other beauties of the places I pass through; some in the plain, others on hills, adjoining to rivers or fountains; with a great many fine houses and gardens.

"Nor are my recreations rendered less agreeable and entertaining by my not seeing well, or not hearing readily every thing that is said to me; or by any other of my senses not being perfect; for they are all, thank God, in the highest perfection; particularly my palate, which now relishes better the simple fare I meet, wherever I happen to be, than it formerly did the most delicate dishes, when I led an irregular life. Nor does the change of beds give me any uneasiness, so that I sleep every where soundly and quietly, without experiencing the least disturbance; and all my dreams are pleasant and delightful."

Of Lord Bacon, "the great Lord Bacon," we shall say but little. We do not profess to give, in the present article, a regular, serious, *medical* essay upon human life, nor to discuss at large its pretensions to perpetuity. We are desirous briefly of affording our readers an idea of what certain persons have said upon the subject; and of enticing them, if it may so be, to look into the writings of those worthies. The works of Lord Bacon, alone, are a mine of learning. If you miss one jewel you find another, sometimes rich, sometimes sparkling, always valuable. He had at once a deep and a heightened style; not so flowing as Jeremy Taylor, and scarcely so sublime as Sir Thomas Brown; yet better adapted perhaps than either for enforcing his own profound suggestions, for laying bare the discovered land of knowledge, and promulgating the experiments and late-found truths of science. He is, we believe, wrong in some of his positions, although every thing he says is worth attention. In his *History of Life and Death*, in particular, he says, among other things, that a life of study conduces to longevity. We apprehend that he is here mistaken. He says also, that the inhabitants of northern countries live longer than those of southern climates. This *may* be; but the evidences of longevity in hot, are as striking as those in cold countries: and the tables (which we have before referred to) of the old persons living in Greenwich hospital, and Kilmainham barracks, Ireland, show that heat and cold are not to be relied on either as friends or enemies to long living.

Lord Bacon seems to be of opinion, that the term of human life has not been shortened since the time of the sons of Noah. We give a short extract from his works; though his *Advancement of Learning*, or his *Fables*, would better justify our eulogy.

"The succession of ages, and of the generations of men, seems no way to shorten the length of human life; since the age of man down from Moses's time to the present, has stood at about eighty years, without gradually declining, as one might have expected. But, doubtless, there are times in every country, when men live to a longer or shorter term; and they generally prove longest lived, when the times afford but a simple diet, and give greater occasion to bodily exercise; and shorter-lived, when the times are more polite, or abound in luxury and ease: but these things have their changes and revolutions; whilst the succession of mankind holds on uninterrupted in its course. And, no question, but the case is the same in other animals; as neither oxen, horses, sheep, &c. have had their term of life shortened in the latter ages; and therefore, the lives of creatures, it should seem, were at once abridged by the deluge."

How this may be, we know not. One thing, however, is certain; namely, that persons have been known to attain ages almost incredible, without any thing appearing to account for their extreme longevity. Is it not fair to conclude from this, that there are seeds of long life within us, and that its growth would be great, were it not cut short by accident, by folly, or inherited disease?

The author of *Hermippus Redivivus* was John Henry Cohausen, a German physician, who did not quite make good his own theory, but died in a sort of nonage, when he was only eighty-five years of age. His book was translated into English by Dr. John Campbell, and has always been considered curious, as giving a summary of the many facts and opinions, which have been published respecting this very interesting subject. *Hermippus Redivivus* takes its name from the following inscription:

"ÆSCULAPIO ET SANITATI
L. CLODIUS HERMIPPUS
QUI VIXIT ANNOS CXV. DIES V.
PUELLARUM ANHELITU
QUOD ETIAM POST MORTEM
EJUS
NON PARUM MIRANTUR PHYSICI
JAM POSTERI SIC VITAM DUCITE."

This, our author, in one part of his book, seems inclined to translate, pleasantly enough, into keeping a ladies' school! We confess that our interpretation is different:—But let the Latin decide. Hermippus, it seems, lived to the age of 115 years, and commends his plan to the consideration of physicians and posterity.

Formerly, life seems scarcely to have been in the same request that it now is. The people of *Cea* (one of the *Clycades*) had a law, that compelled all those who survived the age of three-score to drink the juice of hemlock. We wonder of what age the senators were who fashioned this act of parliament! In China, they order matters differently, as we know. There, the grey-headed sages permit infanticide, on account of the excess of population. And this is well; for otherwise the people would be apt to inquire into the inconvenience, and might perhaps dispose of the old in a similar way, as the less useful part of the community.

Suicide, which is now so heinous that we are consigned to a cross road, with certain offensive solemnities (which, however, have no effect but that of shocking the spectators), was once permitted and sometimes encouraged. The oddest instance of *felo de se* is one mentioned by *Valerius Maximus*, where an old lady, who has been happy all her life, is apprehensive that Fortune may "change her countenance." By what process of reasoning she arrived at this conjecture, we do not learn. This is the anecdote, as given by *Valerius Maximus*.

"He relates, that going into Asia with Sextus Pompeius, and passing by the city of Julis, he was present at the death of a lady, aged about ninety. She had declared to her superiors the reason which induced her to quit the world; and after this, she prepared to swallow down the poison; and imagining that the presence of Pompey would do great honour to the ceremony, she most humbly besought him to come thither on that occasion. He granted her request, and exhorted her very eloquently, and with the utmost earnestness, to live. However, this was to no purpose; she thanked him for his kind wishes, and besought the gods to reward him, not so much those she was going to, as those she was quitting. 'I have hitherto,' said she, 'experienced only the smiles of fortune; and that, by an ill-grounded fondness for life I may not run the hazard of seeing that goddess change her countenance towards me, I voluntarily quit the light, while yet I take pleasure in beholding it, leaving behind me two daughters, and seven grandsons, to respect my memory.' She then turned about to her family, and exhorted them to live in peace and unity, and having recommended the care of her household, and the worship of her domestic deities, to her elder daughter, she, with a steady hand, took the glass that was filled with poison. When she had it, she addressed her prayer to Mercury, and having besought him to facilitate her passage to the better part of the receptacle of departed spirits, she, with wonderful alacrity, drank off the deadly draught. When this was done, with the same composure and steadiness of mind she signified in what manner the poison wrought; how the lower parts of her body became cold and senseless by degrees, and when the noble parts began to feel the infection, she called her daughter to do the last office, by closing her eyes. As for us, says Valerius, who were almost stupified at the sight of so strange a

spectacle, she dismissed us with weeping eyes. For the Romans thought compassion no way incompatible with fortitude."

We have already referred to the law of *Cea*. There was a custom also at *Marseilles*, it seems, which is worthy of being recorded with it. The "Magistrates," it is said,

"Kept constantly in their own custody an efficacious poison, which none were allowed to use, till, by a memorial setting forth the reasons which inclined them to quit the world, they obtained the permission of the senate of this city, which consisted of six hundred, to make use of this method of leaving the light of the sun behind them. Upon their presenting such a petition, the senate examined their reasons, with such an equal temper or medium, as neither indulged a rash passion for dying, or opposed a just desire of quitting this earthly stage; whether such persons wanted to free themselves from the persecutions of ill fortune, or were not willing to run the hazard of losing, in case they had enjoyed them, good Fortune's smiles. Such was the senate's rule; they did not pretend to constrain any person to poison themselves, but then they gave them the liberty to do this, if they would, whenever they judged it proper. Consequently, no one could kill himself in due form, and according to law, in those days at Marseilles, unless the government had first permitted him by a public approbation, founded on the perusal and serious consideration of the motives inducing him to such an action."

Our author then proceeds to discuss the great question as to the possibility of prolonging life, and brings forward fact and fable, reason and figure, in support of it, in a way that is altogether agreeable, if not entirely convincing. He is for beginning "by times;" and thus he illustrates his doctrine:

"The owner of a house well situated, elegantly furnished, and affording variety of prospects, that please the eye, and cheer the mind, is always intent upon keeping it in repair, and does not put off or delay sending for masons and carpenters, till it is on the very point of tumbling about his ears. He knows that all things will decay in time, but he knows that industry and art may make it a long time first, and therefore by wise precautions he strengthens one weak place, supports another, and removes that pressure that might endanger a third; by this means, with little labour, and without any clatter, he keeps things in tolerable order, and lives in it with ease and decency, till such time as his lease expires, and even then quits his tenement in no rotten or despicable condition."

He then goes on to speak of "Asclepiades the Persian," who "looked upon a physician as ignorant of his profession who could not defend himself from diseases; and *this notion he supported by his own example*."—(Our author does not mention how long the Persian's patients lived.) He quotes Roger Bacon, also, in favour of long life, and extracts from Boerhaave as to the effect of vegetable odours; and, finally, refers to Pliny, regarding an Indian nation at the source of the Ganges, "*who have no mouths*, but are nourished with sweet savours."

In one instance, our good Dr. Cohausen is very classical and lively. After some argument he thinks, we suppose, that it is desirable to relieve the dryness of his style with a little of the imaginative and fantastical; and, accordingly, he puts on the robe of Plato; and thus, as he says, he enacts the Athenian.

"When the blooming Thysbe, whom the graces adorn, and the muses instruct, converses with the good old Hermippus, her youth invigorates his age, and the brisk flame that warms her heart communicates its heat to his; so often as the lovely virgin breathes, the kindly vapours fly off full of the lively spirits that swim in her purple veins; these old Hermippus greedily drinks in, and as spirits quickly attract spirits, so they are presently mingled with the blood of the old man. Thus the vapour, which but a moment before was expelled by the brisk beating of the

heart of Thysbe, is communicated by the æther to Hermippus, and passing through his heart, serves to invigorate his blood, so that almost without a metaphor, we may say, the spirits of Thysbe give life to Hermippus. For what is there more easy to apprehend, than that the active spirits of this brisk and blooming maid should, when received from the air, thaw the frozen juices of her aged friend, and thereby give them a new force and a freer passage; and thus Hermippus possessing at once the strength his nature retains, and borrowing fresh spirits from the lovely Thysbe, what wonder that he, who enjoys two sorts of life, should live twice as long as another man?"

Leaving the fanciful now, our author proceeds to facts. We hear of *Gorgias*, who, when he was 108 years old, being asked how he could support the burden of life so long, replied, that "he regretted nothing that he had done, and felt nothing of which he could reasonably complain." "My youth," said he, "cannot accuse me, nor can I accuse my old age"—Of Isocrates, who published a book at 94—Of Xenophilus, the Pythagorean, who taught a numerous train of students till he was 104—Of Leonicanus, who read his lectures at 96—(Fuseli is little short of this)—and others. Among these is the celebrated Marshal and Duke de Schomberg, of whom our author gives the following pleasant account.

"Frederic Armand de Schomberg, one of the greatest officers in the last century, and who, by his personal merit, raised himself higher than any man of his time, for he was marshal of France, generalissimo of the troops of the elector of Brandenburgh, duke and grandee of Portugal, duke and peer both in England and Ireland, and knight of the garter, at the time of his decease. Every body knows that he was killed at the battle of the Boyne, after passing that river on horseback, and bringing up a regiment that had fallen into some confusion, with all the vigour and spirit of a young man. He was then fourscore and two, and yet very hearty, active, and capable of fatigue, nor was he more remarkable for his military accomplishments than for his polite and easy behaviour; he was wont to say, that when he was young he conversed with old men to gain experience, and when he was old he delighted in the company of young men to keep up his spirits. This is the reason that I mention him, for he was in nothing more distinguished than by this disposition. His person was agreeable, he made a fine figure on horseback, he danced and walked well, and was so far from feeling any of the incommodities of age, either in body or mind, that in point of dress, exercise, and sprightly humour, he came nothing short of the company he kept. The winter before he was killed in Ireland, he was walking in the park with abundance of young officers about him, and being met by a grave English nobleman, he could not help telling the marshal, that he was surprised to see him in such company; 'Why so, my lord,' replied Schomberg, 'don't you know that a good general always makes his retreat as late as he can?'"

Several instances are mentioned (more particularly one of a French nobleman, p. 53), in which the advice of Hermippus seems to have been resorted to. We will, at present, quote only one, which rather favours our author's theory.

"All the world hath heard of Mr. Calverley, who kept a boarding-school for young ladies in Queen-square. He maintained his health, his vigour, his cheerfulness, his good sense, and his good humour, to upwards of a hundred, and would say merrily when he heard men forty years younger than himself coughing, groaning, and complaining; 'What a troublesome thing it is to be plagued with old folks!' This gentleman, after he parted with his school, did not survive long, and it is said he was himself of opinion, that he might not only have lived, but have enjoyed life, some years longer, if he had not quitted business."

The following is a short account of two persons celebrated amongst ourselves, viz. Old Parre, and the Countess of Desmond.

"This Parre was born at Winnington, in the county of Salop, in 1483, passed his youth there, in very hard labour, and which is as remarkable, in sobriety and chastity. At fourscore, he married his first wife Jane, by whom he had two children, neither of which were long lived, or showed any extraordinary signs of strength; the first died at the age of a month, and the second lived but a few years. At an. 102 he became enamoured of Katherine Milton, whom he got with child, and did penance in the church for it. Some months before he died, the Earl of Arundel brought him up to London, and presented him to King Charles I., but through the change of air, and in his manner of living, he died soon after; though it was believed he might have survived many years, if he had remained in his own country, and led the same life he was wont to do. This man was overgrown with hair, and during the latter part of his life, slept very much. In the same country lived the famous Countess of Desmond, whose age was unknown to herself, but extremely well supported by the authority of others; since from deeds, settlements, and other indisputable testimonies, it appeared clearly, that she was upwards of an hundred and forty, according to the computation of the great Lord Bacon, who knew her personally, and remarks this particularity about her, that she thrice changed her teeth. We have it on the credit of Alexander Benedictus, that there was a lady of his acquaintance, who at the age of fourscore had a complete new set of teeth, and though her hair had all fallen off before, yet, at the same time she cut her teeth, it grew again, of like colour and strength as at first."

As we have some regard for our readers, (and the subject,) we refrain from quotations in which we are somewhat inclined to indulge ourselves. We pass over the Abbess of Monviedro; and by the Indian, who lived to the age of 370 years! who changed his hair and teeth four times!! and had, in the course of his life, 700 wives!!!—we forbear to speak of the Indian (American) chief, who was the father of five generations, or of *his* father, who was, as may be supposed, still older:—We avoid all particulars of the astrologers, *La Brosse*, *Antiochus*, *Tiburtus*, and the rest; and come at once to our friends, the hermetic philosophers.

In order to give our readers some idea of these people, we shall, in the first place, quote what is said of some of the most famous. Our first extract is well known; it having been the foundation of Mr. Godwin's celebrated fiction of *Saint Leon*.

"There happened, in the year 1687, an odd accident at Venice, that made a very great stir then, and which I think deserves to be secured from oblivion. The great freedom and ease with which all persons, who make a good appearance, live in that city, is known sufficiently to all who are acquainted with it; such will not therefore be surprised, that a stranger, who went by the name of Signor Gualdi, and who made a considerable figure there, was admitted into the best company, though nobody knew who, or what he was. He remained at Venice some months, and three things were remarked in his conduct. The first was, that he had a small collection of fine pictures, which he readily showed to any body that desired it; the next, that he was perfectly versed in all arts and sciences, and spoke on every subject with such readiness and sagacity, as astonished all who heard him; and it was in the third place observed, that he never wrote or received any letter; never desired any credit, or made use of bills of exchange, but paid for every thing in ready money, and lived decently, though not in splendour. This gentleman met one day at the coffee-house with a Venetian nobleman, who was an extraordinary good judge of pictures; he had heard of Signor Gualdi's collection, and in a very polite manner desired to see them, to which the other very readily consented. After the Venetian had viewed Signor Gualdi's collection, and expressed his satisfaction, by telling him, that he had never seen a finer, considering the number of pieces of which it consisted; he cast his eye by chance over the chamber-door, where hung a picture of this stranger. The Venetian looked upon it, and then upon him. This picture was drawn for you, sir, says he to Signor Gualdi, to which the other made no answer, but by a low bow. You look, continued the Venetian, like a man of fifty, and yet I know this picture to be of the hand of Titian, who

has been dead one hundred and thirty years; how is this possible? It is not easy, said Signor Gualdi, gravely, to know all things that are possible; but there is certainly no crime in my being like a picture drawn by Titian. The Venetian easily perceived by his manner of speaking, that he had given the stranger offence, and therefore took his leave. He could not forbear speaking of this in the evening to some of his friends, who resolved to satisfy themselves by looking upon the picture the next day. In order to have an opportunity of doing so, they went to the coffee-house about the time that Signor Gualdi was wont to come thither, and not meeting with him, one of them, who had often conversed with him, went to his lodgings to inquire after him, where he heard, that he set out an hour before for Vienna. This affair made a great noise, and found a place in all the newspapers of that time."

The reader may now take his account of Flamel, a famous man in his time, unless, indeed, he be not (like Shakspeare) "a man for all time."

"Amongst the hermetic philosophers, who are allowed to have attained the highest secrets of science, Nicholas Flamel, of Paris, has been always reckoned one of the most considerable, and his right to this reputation, the least to be contested. The history of this Flamel, who flourished in the fourteenth century, is very curious: he was a person of a good family, though much reduced in point of fortune; had quick parts; a lively wit; and, with the advantage of no more than an ordinary education, was sent to Paris to get a living as he could. Flamel wrote an extraordinary good hand, had some notion of poetry, and painted very prettily; yet all these accomplishments raised him no higher than a hackney clerk, in which condition he worked very hard, and had much ado to pick up a subsistence. In 1357, chance threw in his way a book of hermetic philosophy, written by one Abraham, a Jew, or rather engraven on leaves made of the bark of trees, and illustrated with very curious pictures, in which the whole secret was laid down in the clearest manner possible, to such as were acquainted with hermetic philosophy. This treasure cost Flamel no more than two florins, for the person who sold him the book knew nothing of what it contained, and Flamel himself, though he made it his whole study for twenty years, and though he took the precaution of copying the pictures, and hanging them up in his house, and asking the learned their opinion about them, was able to make very little of them.

"Tired at length with so vain and so laborious a study, he, in 1378, took a resolution to travel into Spain, in hopes of meeting there some learned Jew, who might give him the key to the grand secret; that this journey might not appear to be undertaken on quite so chimerical a motive, he made a vow, to go in pilgrimage to St. James of Compostella, a practice frequent in those times. After much search to little purpose, he met at last with a Jew physician at Leon, who had been lately converted to the Christian religion, and who was well versed in this kind of science; this man, at the persuasion of Flamel, consented to go with him to Paris; but when they were got as far as Orleans, the physician, who was far in years, and little accustomed to the fatigue of travel, fell sick of a fever, which carried him off in a few days. Flamel having rendered the last kind offices to his dying friend, returned very disconsolate to Paris, where he studied three years more, according to the instructions he had received from the physician, with such success, that on the 17th of January, 1382, he made projection on a large quantity of mercury, which he changed into fine silver, and on the 25th of April following, he transmuted a vast quantity of mercury into gold. He afterwards repeated frequently the experiment, and acquired thereby immense wealth. He and his wife Perenella, in the midst of all these riches, lived still in their old sober way, and eat and drank as usual, out of earthen vessels. They maintained however a vast number of poor, founded fourteen hospitals, built three chapels, and repaired and endowed seven churches. In short, the acts of charity they did were so astonishing, that Charles the VI., who was then upon the throne, resolved to inquire how they came by their wealth, and sent for that purpose M. de Cramoisi, master of requests, and a magistrate of the highest reputation for probity and honour, to examine into their circumstances; to whom Flamel gave so satisfactory an answer, that no further inquiry was made about them; but the honest old people were left in possession of the only privilege they desired, which was no greater, than that of doing all the good that lay in their power.

"The circumstances of this story, the immense wealth of Flamel and his wife, their many foundations, their vast endowments, and the prodigious estate they left behind them, are all facts, so well attested, that no dispute can be raised about them; or if there were, the last will of Nicholas Flamel, which, with forty authentic acts, of as many charitable foundations, that are laid up in the archives of the parish church of St. James, in the butchery at Paris, are proofs capable of convincing the greatest infidel. This Flamel wrote several treatises on the art of chemistry; but they are extremely obscure, because they are all delivered in an allegorical way, and consequently one may hit upon various interpretations, without coming at the true one; which it is said he gave to a nephew of his, and that the secret remained long in the family; nay, it is owing to indiscretion, if it does not so still. I must not, however, conceal an attempt that has been made to overturn the whole of this history, not by denying the facts, for that would have been ridiculous, since there are hundreds of poor that yet subsist on Flamel's and his wife's foundations, and are consequently so many living witnesses of the veracity of that part of the relation.

"But the thing attempted is, to give another account of Flamel's acquiring his wealth, and in order to this they tell you, that he was a notary public, at the time the Jews were expelled France, that they deposited with him, in trust, a great part of their wealth, and that he kept it for his own use."

But we think, (to use Dr. Cohausen's speech,) we "hear some captious reader cry out—what, did Flamel and Perenella die? to what end then all this tedious story? Peace a little." A quotation from the voyage of the Sieur Paul Lucas will help us. He informs us, that being at *Broussa*, in Natolia, he met a person dressed like one of the Tartarian Dervises.

"On the 10th, the Dervise, whom I took for an Usbec, came to pay me a visit. I received him in the best manner possible, and as he appeared to me a very learned, as well as curious man, I showed him all the manuscripts I had bought, and he assured me, they were very valuable, and written by great authors: I must say, in favour of this Dervise, that he was a person every way extraordinary, even to his outward appearance. He showed me abundance of curious things in physic, and promised me more; but at the same time he could not help saying, that it was necessary, that I should make some extraordinary preparations on my side, in order to put myself into a condition of profiting by the lights he was able to give me. To judge according to his appearance, he should have been a man about thirty, but by his discourse, he seemed to have lived at least a century, and of this I was the more persuaded from the accounts he gave me of some long voyages he had made.

"He told me, that he was one of seven friends, who all wandered up and down the world, with the same view of perfecting themselves in their studies, and that at parting, they always appointed another meeting at the end of twenty years, in a certain city which was mentioned, and that the first who came waited for the rest. I perceived, without his telling me, that Broussa was the city appointed for their present meeting. There were four of them there already, and appeared to converse with each other, with a freedom that spoke rather an old acquaintance, than an accidental meeting."

With these persons the Sieur Lucas converses a long time about religion, natural philosophy, chemistry, alchemy, and the cabala.

"At last, I took the liberty to mention the illustrious Flamel, who, I said, had possessed the philosopher's stone, but was dead to all intents and purposes for all that. At the mention of his name, he smiled at my simplicity. As I had by this time begun to yield some degree of credit to his discourse, I was surprised he should make a doubt of what I advanced upon this head; the Dervise observed this, and could not help saying with an air of mirth, and do you really think the thing so? do you actually believe Flamel is dead? no, no, my friend, continued he, don't deceive yourself, Flamel is living still, neither he nor his wife are yet at all acquainted with the dead. It is not above three years ago since I left both the one and the other in the Indies, and he is, said he, one of my best friends; upon which,

he was going to tell me, how their acquaintance grew, but stopping himself short of a sudden, that, said he, is little to the purpose, I will rather give you his true history, with respect to which, in your country, I dare say, you are not very well acquainted.

"We sages, continued he, though rare in the world, yet are of all sects and professions, neither is there any great inequality amongst us on that account. A little before the time of Flamel, there was a Jew of our fraternity; but as through his whole life he had a most ardent affection for his family, he could not help desiring to see them after he once came to the knowledge of their being settled in France. We foresaw the danger of the thing, and did all that in us lay, to divert him from this journey, in which we often succeeded. At last, however, the passion of seeing his family grew so strong upon him, that go he would; but at the time of his departure, he made us a solemn promise to return to us as soon as it was possible. In a word, he arrived at Paris, which was, as it is now, the capital of the kingdom, and found there his father's descendants, in the highest esteem among the Jews. Amongst others, there was a rabbi, who had a genius for the true philosophy, and who had been long in search of the great secret. Our friend did not hesitate at making himself known to his relation; on the contrary, he entered into a strict friendship with him, and gave him abundance of lights. But as the first matter is a long time preparing, he contented himself with putting into writing the whole series of the process, and to convince his nephew that he had not amused him with falsehoods, he made projection in his presence on thirty ocques (an ocque is three pounds) of base metal, and turned it into pure gold. The rabbi, full of admiration, did all he could to persuade our brother to remain with him, but in vain; because he, on the other hand, was resolved not to break his word with us. The Jew, when he found this, changed his affection into mortal hatred, and his avarice stifling all principles of nature and religion, he resolved to extinguish one of the lights of the universe. Dissembling, however, his black design, he besought the sage in the tenderest manner, to remain with him only for a few days. During this space, he plotted and executed his execrable purpose of murdering our brother, and made himself master of his medicine. Such horrible actions never remain long unpunished. Some other black things he had done came to light, for which the Jew was thrown into prison, convicted, and burnt alive.

"The Jews fell soon after under a persecution at Paris, as without doubt you have heard. Flamel, more reasonable than the rest of his countrymen, entered into a strict friendship with some of them; and as his great honesty, and unblemished probity were well known, a Jew merchant entrusted him with all his books and papers, among which were those of the Jew which had been burnt, and the book that our brother had left with him. The merchant, taken up no doubt with his own affairs, and with the care of his trade, had never considered this valuable piece with any attention; but Flamel, whose curiosity led him to examine it more closely, perceiving several pictures of furnaces and alembics, and other vessels, he began immediately to apprehend that in this book was contained the grand secret. He got the first leaf of the book, which was in Hebrew, translated, and with the little he met with therein, was confirmed in his opinion; but knowing that the affair required prudence and circumspection, he took, in order to avoid all discovery, the following steps. He went into Spain, and as Jews were every where settled throughout that country, in every place that he came to, he applied himself to the most learned, engaging each of them to translate a page of his book; having thus obtained an entire version, he set out again for Paris. He brought back with him a faithful friend of his, to labour with him in the work, and with whom he intended to share the secret; but a raging fever carried him off, and deprived Flamel of his associate. When therefore he came home, he and his wife entered together upon the work, and arriving in process of time at the secret, acquired immense riches, which they employed in building public edifices, and doing good to a multitude of people."

The facts which we have quoted speak for themselves. The theories that have been from time to time brought forward,—of diet, air, exercise, &c., must of course be reduced to experiment, and take their station accordingly. With the astrologers we profess to have nothing to do: they are too occult. But the Hermetics are an interesting people. Less universal than ordinary conjurors, and with a sublimity to

which our modern quacks (English or Italian) have no pretension, they have, also, claims to our respect on the ground of pure and temperate lives, and sometimes of extensive learning.

FROM THE EUROPEAN MAGAZINE.

ON THE MANNERS AND CUSTOMS OF AUSTRIA.

It is surprising that up to the present time, there should scarcely have been any statistical account of an empire situated in the heart of Europe, which has always acted a distinguished part in this quarter of the world; and scarcely any description of the manners and customs of its inhabitants. Some years ago M. Marcel de Serre published an account, almost entirely statistical, of this country, under the title of "Travels in Austria." The well deserved success of that work vouches for the merit of the one now under our consideration.

The first two volumes contain an abridgment of the history of the House of Austria, from its commencement to the present period: and it is sufficient to say, that this abridgment is executed with that ability, which might have been expected from the talents of the author. As the history of the House of Austria by the celebrated Coxe is known to most of our readers, and accessible to all, we shall confine ourselves to an analysis of those parts of the volumes before us that treat more particularly of the manners, usages, and customs of that extensive empire.

In this work may be found very accurate calculations relative to the extent of the Austrian territory, and general observations on the provinces. These possess great interest.

If the empire of Austria, though the largest of the German states and one of the most considerable empires in Europe, is far from being able to rival Russia in extent of territory; it has many advantages over that country, in the mildness of its climate, the fertility of its soil, and the industry of its inhabitants. In industry and civilization Austria is inferior to France, only because it possesses a less favourable situation, and a smaller number of sea-ports and other outlets for its manufactures. The coast of the Adriatic is its only communication with the Mediterranean; and the high mountains of Styria, Carinthia, and Croatia, render the communication between the provinces of the east, the centre, and the north, with that of the coast, very difficult. During the occupation of the Illyrian provinces by the French, roads were made in order to remove these obstacles in part, though in a great measure they were insurmountable; so that, for a long time Austria must be inferior to France in commerce, in spite of the acquisition of the State of Venice, which brought with it the considerable port of that name; previously it had only Trieste and Fiurme, which, besides the possession of that celebrated city, brought with them the dependant provinces in Terra-Firma. These provinces, reunited to the Milanese, Mantua, &c. form the kingdom of Venetian Lombardy, one of the brightest gems in the Austrian crown. Upper and Lower Austria, Styria, Carinthia, Carniola, a part of Silesia, Moravia, and the kingdom of Bohemia, are what is called the German States of this empire, to which may be added eastern Gallicia and the district of Buko-

rino.—The Hungarian dominions are Hungary, properly so called, Sclavonia, Croatia, Dalmatia, Transylvania, and a great part of Tyrol.

The most accurate geographers have supposed that the extent of Austria is from 11,999 to 11,989 square miles. They have all equally admitted that this exent includes a population of about 26 millions of inhabitants, distributed among 877 cities, 2096 towns, and 74,740 villages. Those, who have extended their researches still farther, enumerate besides the villages 16,101 small hamlets.

After treating of these matters, the author describes the varieties of costume in the empire of Austria. These changes correspond with the inequality of the soil and climate. Our author begins with a description of the picturesque dress of some of the inhabitants of Transylvania. —After having observed that this country is entirely surrounded by mountains, he adds, that its capital, Hermanstad, is peopled with Saxons, who are distinguished from the Aborigines by their easy circumstances, the result of their industry and sobriety. Their houses, cleaner and better built, give a smiling air to the districts they inhabit. The greater part profess the Lutheran religion. The men in general are of tall stature, their dress is a mixture of the ancient German costume with that of the Hungarians. The head-dress of the women and girls is generally a bonnet adorned with flowers, and their dress is ornamented with fur; the Saxon ladies of Hermanstad have left off their ancient dress, which so well became the style of beauty peculiar to this country, a light and elegant shape, a complexion of lilies and roses, large blue eyes, and a skin of dazzling whiteness. Here the author makes a digression upon the power of the Austrian monarchy, which appears foreign to the subject, but which may, nevertheless, be read with interest in the work.

M. Marcel now returns again to costume, and observes that the peasant girls round Hermanstad dress with the most remarkable taste and judgment. After having described, very much at length, their ordinary dress, he says, that on holidays they adorn themselves with necklaces and ear-rings of coral or glass. The women wear, like the men, boots with flat iron heels; they make all their own clothes, as well as those of their husbands and children.

These short observations, he says, upon only one province (Transylvania) and that province not the most known in Austria, will give an idea of the prodigious variety there is in the large possessions of this monarchy, and this appears in the general aspect of the country. We will now follow M. Marcel in his remarks on matters of far greater importance than that of costume, which, though it is apparently a digression, yet becomes the principal subject.

M. Marcel gives a picture of the power of Austria, of which we will give a sketch:—

Ever since the reign of Joseph the Second, who, says our author very judiciously, if he did not execute great things, did, at least, conceive them, Government has made great efforts to direct the national attention to agriculture and the arts of industry, to which the inhabitants seem naturally inclined. Manufactures have been established, and new experiments have been tried to ameliorate the soil. With the exception of the German provinces, where these ameliorations have taken place, Austria has every thing to do in the countries under

its jurisdiction. A beginning ought to be made by rendering communication between the provinces secure and easy, in order to encourage the consumption of the produce of the soil. Of what importance, for example, this would be in Hungary, one of the most fertile countries in Europe, and more especially in Gallicia, on the coast, and in the provinces of the centre!

In this respect the visits of the French armies have been very useful to Austria. This empire owes to them their excellent roads, executed in spite of nature and the steepness of the ground, and, what is still more extraordinary, in defiance of the inhabitants themselves, particularly the Dalmatians. They all thought that these new roads, which would render their mountains accessible, would also be a certain means of reducing them to permanent slavery.

Among modern nations, who communicate more with each other than the ancients, large roads are not sufficient for conveyance, especially of military transports; rivers and canals are become indispensable communications, and these Austria is in want of. A multitude of obstacles renders the navigation of the Danube, the principal river in Austria, as laborious as it is dangerous. The navigation of the Vistula presents fewer obstacles, but it is not extensive; this river, crossing only a small part of Gallicia. The Inn, the Traun, and the Theiss, afford a safe navigation for boats, and also for rafts, with which they sail down the Danube; whilst the Marche, the Wag, the Grand, and the Une, facilitate the communication of the southern provinces with the rest of the empire. The commerce of the northern provinces might be rendered easy by means of the Elbe, increased by the Moldau and Eger, also by the Vistula, to which is united the Sanar and the Bug; and, lastly, by the Dniester which empties itself into the Black Sea. All these means, the only ones open to the commerce of Austria, ought to teach the Government the importance of trying new ones, and of making canals to facilitate the conveyance of merchandise from one province to another. To attain this, M. Marcel de Serre recommends the union of the Marche with the Oder. After this, our author determines the limits of the Austrian-German monarchy, in doing which he enters into a detail too long for insertion here, but which may be profitably read in the work. We shall confine ourselves to a notice of his very interesting observations upon the general aspect of Austria, and upon the character of some of its inhabitants:—Austria, taken altogether, he says, is a very mountainous country. Tyrol, Styria, and Upper Austria, remind me at every step of the boasted scenery of Switzerland. Hungary is only a vast sandy plain, formed by the earthy alluvions of the Danube and the Theiss. In Transylvania, on the contrary, the soil rises abruptly.—The name of this province needs no explanation: for it is plain that it means the situation of countries beyond the forests.

Three distinct races form the population of Transylvania. The Saxons, who are the industrious race; the Hungarians, who form the nobility of the country; and lastly, the Sicules and Wallachians, who may be considered as the most uncivilized of the European nations: without activity or industry, they lead an idle life, following no other occupation than that of attending their flocks. A few of them are employed as carters and tanners, and exercise their trades in Bannat: there are but few who take the trouble to cultivate the earth, they

must be forced to it by extreme want. These people are deceitful, vindictive, and cordially detest every other nation; drunkenness and the basest dispositions are the consequences of their bad education and the examples of their parents. They let their beards and hair grow, which have the most disgusting appearance, for they do not give themselves the trouble to tie it up, much less to comb it. Their whole dress consists of a coarse shirt, tied round the loins with a leathern girdle ornamented with buttons, to which are suspended their knives, forks, steel, &c., and they never go out without these implements; the lower part of their clothing consists in long pantaloons, small buskins, and sandals tied with strings of leather; in the winter they wear a fur bonnet, and in the summer a round bonnet of felt.

Gallicia is a sandy plain, where the soil is more irregular and unequal than in Hungary: small hills, in some places fertile enough, variegate it in a thousand different ways. That part of Silesia which borders on the east of Gallicia more resembles Bohemia, which it also adjoins, than the first of these provinces; like Bohemia it is studded with lofty hills, which form towards the west a part of the Suliote chain of mountains, and towards the south a part of the Carpathian.

Quitting Moravia, which is less mountainous than Silesia, and, directing your course towards the south, you enter Lower Austria, where fertile plains are watered by the Danube, the finest river in the world. Here cultivation has taken advantage of the excellence of the soil, and more particularly in the neighbourhood of Vienna; but the soil of Lower Austria does not every where present the same fertility. In drawing near the southern part of Higher Austria, every thing is changed: those hills where the vine joined to the elm once displayed its golden branches, those fertile pastures once covered with innumerable flocks, are converted into narrow valleys, rocks stripped of verdure, thick forests, and high mountains the abode of eternal snow; such is the aspect of this part of Upper Austria. Still farther north towards Styria and Carinthia the aspect of nature is still more savage; a dark and dreary verdure, intersected by plains of snow, covers the mountains.

The whole empire of Austria may be divided into three regions; that of the south comprehends Southern Tyrol, Istria, Frioul, Southern Carinthia, Carniola, the borders of Italy, and a part of Croatia. The general temperature of these provinces is from nine to ten degrees. The spring and autumn are like those of Italy, and the summer is very hot when under the influence of the fatal *sirocco;* but in the mountainous country the temperature follows in proportion to the elevation of the sun: thus, in some mountains there are in the middle of the hottest season constant, and, sometimes, eternal snows. The olive, peach, vine, fig, and pomegranate thrive in the open air.

The middle division consists of a great part of Hungary, all Transylvania, Archduchy of Austria, Styria, Carinthia, and some parts of Moravia and Bohemia. The olive does not grow here, but the vine and Turkish corn prosper well, except in the mountainous districts. The general temperature is much more variable in this region than in that of the south. In the hottest places it is never more than eight degrees, and often much lower.

In general the air is pure and serene. The winter lasts three or

four months; the spring is mild, though generally very damp. The summer is hot, but variable, and often accompanied by violent storms. There are few fine days, except in the autumn. The air is never unhealthy but in the marshy lands of Hungary, which is called the tomb of the Germans.

The third or northern division comprehends Gallicia, a part of the north of Hungary, Bohemia and Moravia, as well as Austrian Silesia. The general temperature is scarcely ever more than six degrees, rarely seven; for which reason there are no vines nor maize, even corn cannot be well cultivated, except in certain parts, and the culture of it ceases altogether in the higher parts of Bohemia, and the north of Hungary: the air is generally pure and salubrious: the winter, though very severe, seldom lasts longer than five months; the heat of summer is often insupportable in the deep valleys of Bohemia, or the deserts of the Vistula.

There is a very interesting account in this work of a singular people, dwelling in the midst of the Austrian states, but of Muscovite origin, forming the palatinate of Marmoros, situated in Hungary on the frontiers of Poland.

After having explained the division of the empire of Austria into three regions and their different climates, M. Mansel speaks of the population. The extent of this empire is 11,999 square miles, and contains about twenty-six millions of inhabitants; the average is 2,176 individuals to one square mile. Perhaps it will be asked, says he, whether the population always answers to the extent and goodness of the soil, or whether it is solely governed by the extent of industry or cultivation. The most exact data prove, that it always keeps pace with the progress of industry or civilization, rather than with the excellence and fertility of the land: indeed the two most populous provinces of Austria are far from being the most fertile. Surrounded by high chains of mountains, Bohemia and Silesia are nevertheless the most populous. The great fertility of the soil of Hungary does not produce a population at all equal to either of these two provinces; the difference is in the ratio of ten to seventeen. Lower Austria, which has an excellent soil, and where industry is not far advanced, and which contains the capital of the empire, is not so populous as Bohemia and Silesia. In Bohemia they reckon 867 inhabitants to one square league; in Silesia 847, and in Lower Austria, only 766. The population diminishes in proportion as industry and civilization decrease, and on the military frontiers there are but 295 inhabitants to the square league.

The two extremes of population in the provinces of Austria are from three to one, or rather from six to seventeen. The average population is 793 inhabitants to the square league. If this account is compared with that of France, Austria will be found much inferior in this respect, for there is in that country, from the best authorities, about 1,094 inhabitants to a square league: the population then of the two empires is as six to eleven, so that the average population of Austria is little more than half that of France, but it is more equally distributed. Some of the French departments have but 421 inhabitants to the square league, whilst others contain 3,869, or 2,786, or 2,274 inhabitants on the same extent. It is not so in Austria. This empire is divided on nearly the same plan as France was formerly.

Most of the provinces have a governor and a supreme council, which

issue and communicate their orders to the different captains or chiefs of the circles charged with the civil administration, who have consequently less responsibility. Ever since 1812 the territories under the power of Austria have been divided into ten principal provinces. Each of these divisions is regulated by a governor, who constantly resides in the chief town.

The governor of Hungary resides at Buda, under whose jurisdiction there is a population of more than seven millions; whilst the governor of Croatia has not more than two hundred and fifty thousand, so that the administrators of the provinces exercise their authority over a very unequal number of inhabitants; and it appears, that on the distribution of the Austrian provinces, this important object was not regarded as it ought to be in all partitions. Without comparing Hungary to the other Austrian provinces, because this kingdom forms a separate state in the midst of the empire, it would seem that some governors superintend three millions of souls, whilst others have not three hundred thousand. There is no better arrangement in the subdivisions, that is, in the circles or districts.

The population of Austria is composed of different races with manners peculiar to themselves, and some of them have even a particular language. These people have not all the same character nor the same kind of attachment to their country, which is one of the great causes of the political weakness of Austria; a weakness very obvious in the event of invasion. The different inhabitants of the empire possess neither the same interests nor the same way of thinking. The Hungarians, the Tyrolese, and the Bohemians, are very jealous of their independence, do not consider themselves of the same nation as the Austrians, whom they consider as inferiors, being in general endued with less vivacity and a less decided character. They are not united together, though they are all under one power. The principal nations, spread over the vast territory of Austria, are, the Germans, the Sclavonians, and the Hungarians properly so called; there are also Walachians, Bohemians, Greeks, and a few Armenians, French and Walloons; but their different races do not form an important part of the population. The Jews are very numerous in Bohemia, Moravia, Hungary, Gallicia and Transylvania; but there are only a few of them in Styria, Carinthia and Lower Austria. There are 1600 Jewish families in Transylvania, and, according to a very exact account, three hundred families in the Austrian capital only. Commerce attracts so many Jews to Austria, though the government does not grant them any particular privileges. The Jews of Austria, in their property and persons, enjoy the same protection as other denizens and foreigners: excepting military service which they are jealous of, and situations under government which they could not occupy, they enjoy the same rights as the other citizens, with the free exercise of their religion; but, although they are free from a personal tax, more degrading perhaps than oppressive, severe laws have been enacted against their monopolies.

It is generally thought that the Germans form the chief part of the Austrian population, but it is far from being so; there is only Austria, properly so called, that is entirely peopled by Germans; they are very much scattered in Styria and Carinthia. The circle of Ellingen in Bohemia is said to be entirely peopled by them, but they are not

numerous in Moravia, still less so in Hungary; more are seen in Transylvania, Gallicia and Austrian Silesia. The Sclavonians are the most numerous race in the empire of Austria; they are divided into a great many branches, some of which inhabit Prussia and Poland, and others the Austrian dominions: among the latter are the Techecks, Slowaquians, Hannaquians, Poles, Windians, Rascians, Croatians and Russians; these last are not numerous in Austria, there being but one hundred families of them. The Bohemian language, spoken in Bohemia and Moravia is only a dialect of the Sclavonic; but the Sclavonians, living in a German country, have adopted an alphabet which differs very little from that used in Germany. This dialect is remarkable for its richness and the mildness of its pronunciation, as well as for the facility of its adaption to music; it undoubtedly owes these advantages to the mixture of Sclavonic; it is soft, sonorous, and agreeable to the ear, and, though spoken by people not far advanced in the sciences and the arts, it has, notwithstanding, attained a high degree of perfection; it has even all the characters of a modern language, and may hold a distinguished place amongst the languages of nations more advanced in civilization. The tones of expression which it is susceptible of, and the inflections it has in common with the Greek and German, render it as expressive as it is energetic: rich and harmonious in varied expressions, it rivals the Italian in melody and sweetness, particularly when sung: all the inflections are formed by the vowels, and this circumstance is favourable to the harmony of a language. If we consider that to this advantage is joined that of having a regular prosody, and of being more capable of adaptation to the ancient Greek metre than any modern language, we may hope that, if ever spoken by the learned, it would console us for the loss of the language of Homer and Pindar, so favourable is its structure and organization. This language is more general than any other European language except the French: it extends as far as Turkey, and is in use even in Nova Zembla.

The Hungarians are, next to the Sclavonians and Germans, the most extensive race in the Austrian monarchy: probably they derive their origin from Asia, as they preserve some traces of Asiatic manners. Ignorant and little inclined to arts or commerce, they lead that indolent apathetic life which forms the happiness of the Eastern nations. Hungary then would be a very poor country if the fertility of the soil did not make up for the want of industry.

The Walachians with the Sclavonians are the most ancient inhabitants of the countries watered by the Danube. Though less in number than the Sclavonians, they are nearly as numerous as the Hungarians, and it is probable that they originated in a mixture of Dacians, Romans and Sclavonians; their language is composed of many expressions, more or less altered, which evidently belong to these people; they are without religion and the arts, and almost without civilization. The Walachian peasants, acquainted only with the wants and pleasures of a wandering life, are in general deceitful, vindictive, and inclined to hate every other nation; and are by the Hungarian and Sclavonians treated like slaves. The Walachians, like the Sclavonians, multiply very much; perhaps it is on this account that they appear dangerous to the Hungarians, amongst whom they live.

The Czingarians, a still more wandering or rather vagabond race,

are very prevalent in Bukovino, Hungary, Gallicia and Transylvania; in this last province, there are more than 60,000: and amongst 70,000 inhabitants, which formed the population of Bukovino when it was ceded in 1778 to Austria, there were more than ten thousand Czingarians. They have been erroneously called Bohemians and Egyptians, because it was supposed, though without foundation, that they were the descendants of the ancient vagabonds of Egypt, expelled at the beginning of the 7th century by the sultan Selim when he conquered that country; but the most probable opinion is, that they are Hindoos of the much despised cast of Parias, who were driven from their country in 1408 and 1409 at the conquest of India by Timur. The period of their arrival in Transylvania is unknown. In spite of the endeavours of Maria Theresa and Joseph II. to habituate them to a settled mode of life, they could scarcely induce a part of them to settle in some of the Transylvanian districts, where they attend to the cultivation of the earth. This people speak a particular idiom amongst themselves, but with other people, they make use of the language of the country where they live, especially of that of Hungary: this singular race prefer a wandering life, exercising the trade of fiddling, and committing every where theft and robbery. Without having scarcely an idea of music, they are very skilful in the execution of their national and Hungarian dances and songs. Almost always wandering and travelling, followed by their wives and children, with their harps slung upon their backs and their Cythari in their hands, they draw forth from those instruments melodious sounds, when they take their rest on the sides of the roads: and, in all the villages through which they pass, they endeavour to interest the peasants and travellers by an afflicting representation of extreme misery. The Czingarians generally show more attachment to the Hungarians than to any other people, either because they resemble them more in manners, or because they are more protected by them; they are rather partial to the Sclavonians, but they cannot endure the Germans.

Among the people of Austria, M. Marcel mentions the French, the Walloons, the Italians, and the Armenians; but the first three are in such small numbers that they have no influence upon the population in general; the Armenians are the most numerous.—Proceeding from Asia towards the end of the seventeenth century, they fixed themselves in Transylvania, where there are now more than eleven hundred families, most of whom inhabit the cities of Armenienstadt and Ebels Falva; and from them the former derives its name.—In the course of time many of them established themselves in Hungary, not congregating in any considerable numbers, except at Neugata, but scattering themselves all over the kingdom, where they are still in possession of all the large farms. There are also some of them in Gallicia, where they are sufficiently numerous to have an archbishop, at Lemberg, the capital of that province. In travelling through Gallicia, it is not a little surprising to see the Armenians in their Oriental costume, proud of the beauty and elegance of their clothes. The same causes that brought the Armenians to Austria, also conducted thither the Greeks, the Albanians, and the Macedonians. These different nations are not very numerous, for there are scarcely an hundred families of them in Transylvania, though they abound there more than in any other province. These people, being naturally industri-

ous, have been very useful to Austria; and the town of Cronstadt owes to them the establishment of several important manufactures. It is only in Moravia that some Walloon families are seen, who remind us of that brilliant period of her history when Austria reigned over Spain as well as Germany. As for the Italians, there are none except in the provinces situated on the coast of the Adriatic; their numbers in the provinces, of course, increases as those provinces approximate towards Italy. In like manner their numbers increase in German Tyrol; beyond the city of Brixen, they become gradually more numerous, and more especially at Reveredo.

On the frontiers of Transylvania is the greatest variety of people in all the Austrian dominions. The manners of the inhabitants of Bukovino are peculiar to themselves. Towards the end of the third century the Turks ceded this country to the House of Austria. It is mountainous, and covered with forests. The inhabitants are employed in tending cattle, particularly horses, and they are, for the most part, of the Greek religion. The purity of their manners, their sobriety, and the extreme simplicity of their mode of life, recall to our recollection the tastes and occupations of the ancient Patriarchs; they attain a very advanced age; in their dress they resemble the Turks, but still more the Persians, on account of their large bonnet of black sheep-skin.

In considering, as it regards the empire of Austria, the influence of climate and soil upon the manners and characters of mankind, the author, after some excellent observations upon this influence, among ancient and modern nations, remarks, that there is in the poetry of the north of Germany a vague enthusiasm, a desire of something which they can never obtain.

The imagination of the Germans in this part of their territory is as fertile as it is unlimited. Encircled by the mists of the north they have never produced models, or works attaining a high degree of perfection; for they cannot bear the restraint of rules in literature, but lose themselves in vague ideas. Every thing bows to the influence of uncertainty; power is as fluctuating as thoughts and ideas, and enlightened men should take no more liberty with mental speculations than princes should take with the produce of the earth.

In the south of Germany, where nature is more calm and smiling, the imagination is much less exalted: power is less uncertain and more concentrated. In the west of Germany, the passions assume a much milder character: it would be the most fortunate country in Europe, if the government which directs it had not evinced a weakness which little accords with the dictates of wisdom. Temperate in climate, fertile in soil, and happy in its institutions, it continues in a monotonous state of prosperity, which can only be injurious to activity of thought, but never to the happiness of the inhabitants. The natives of this peaceful and fertile country only desire to live to-morrow as they did yesterday.

Every thing in Austria is done more for the sake of duty than for glory. A nation which has no other guide than the love of duty must be a nation of real worth and integrity.

The Germans in general, and particularly the Austrians, have the greatest sincerity and honesty. Their excellent qualities are as much derived from the excellence of their institutions as from the goodness

of their hearts; their mild and peaceful character, as well as their domestic habits, incline them to order and union, from which they never depart. In the winter, obliged to be united round their stoves in a room excessively heated, with an atmosphere hot and heavy, they acquire soft and mild habits, whilst the activity of their blood is lessened. The slowness of their actions, and the importance they attach to them, contribute to perpetuate their ideas of civility and hospitality, which they exercise without distinction, either towards their countrymen or strangers. That goodness and generosity, which pervade the minutest actions of the Austrians, are very disagreeable to the generality of travellers.* At every step you hear them say,—"It is impossible—I cannot do what you wish"—though it may be the easiest thing in the world; but, if you insist upon it, they make no more difficulties but do what you desire, obeying less for the hope of a reward, than out of respect for power and a loud command. M. Marcel has often heard them say, "these devils of French make us do every thing they like: but how can we resist them? they insist upon it so stoutly."

It is a very mistaken notion to think every thing may be obtained in Germany for money; they are insensible to that powerful stimulus, but they never resist the appearance of power and the decided tone of command.

The custom of shutting themselves up in the winter in rooms, excessively heated by enormous stoves, and where the smoke of tobacco contributes still more to form a thick and unhealthy atmosphere, must, as the author observes, render their blood heavy and viscous: the use of beer may also have some influence, as it relaxes the nervous system. More than once during his travels the author was obliged to stay in these warm rooms some hours, and he never left them without feeling very sensibly the effects of the heavy atmosphere to which he had been confined.

In consequence of their love of order the Austrians are very clean in their clothing;† there is not with them, as in many large cities in Europe, miserable wretches covered with rags walking by the side of elegance and luxury. Every Austrian peasant has a clean coat, boots, and a furred cloak for the winter: their houses are as clean as their clothes, and though nothing in their habitations bespeaks wealth, nothing indicates misery and nakedness; they wear their clothes as long as the French, but they take much more care of them. The general taste for cleanliness and decency is evinced by not suffering beggars to wear rags, and it is not one of the least benefits of the Austrian government, to have almost totally extirpated them from the countries under its dominion.

When a whole people are sensible of benefits and never forget them, they deserve general esteem; and such are the Austrians. If you oblige them they always remember it, whilst they easily forget the injuries done to them. They have been reproached for being too much attached to ceremony and etiquette, and many foreigners have ridiculed them on this account, but unjustly: this formal politeness is the

* All that the Author says in this place, and subsequently, on the manners of the Germans in general, appears to be particularly meant by him to apply to the Inhabitants of Southern Austria.

† This observation more particularly applies to Southern Austria.

consequence of the spirit of order and decency. It must be confessed, that if etiquette and formality are more observed in Germany than elsewhere, the prerogatives which the nobility enjoy are, in a great measure, the cause. Though the demarcation of classes is more marked, yet there is nothing offensive in this restraint, for good-nature prevails in Austria even over the pride of aristocracy.

The universities in the north of Germany have instructed the people in constitutional forms of government, and have contributed to divest the feudal system of its grinding and barbarous severity. Feudal slavery, however, still exists in several Austrian provinces where the progress of knowledge has not yet extended its influence, but it is gradually decreasing.

Amongst the higher classes of society in Germany it is very common to unite a great many literary titles, and there are more diplomas in this country than in any other in Europe, and there is more importance attached to them; but this *mania* is much more common in western Germany than in the south, where, before the establishment of the academies of Munich and Landshut, there did not exist a single university or academy of the least repute; on the contrary, it is well known what lustre the universities of Gottingen and Halle have given to the north of Germany, and what influence these great establishments have had in the progress of knowledge. In Austria, where emulation has never been directed towards the cultivation of letters, where literary success is no glory because it is supposed to weaken military spirit, and where the light of knowledge has scarcely penetrated, titles purely literary could not be of much importance. It must, therefore, easily appear that there is more public spirit in the north of Germany than in the south, where there is not that spirit of unity, although there exists but one sovereign power. Two causes, nevertheless, excite a species of public spirit and patriotism in Austria—the love of their country and their sovereign; and, in fine, the happiness which every one enjoys under protecting laws. More addicted to husbandry than trade, the Austrians are excessively attached to their native soil; therefore the interests of the country are more dependant on the labourer than on the merchant, whose almost only aim is the success of his private speculation on which depends his precarious existence. Agriculture is much honoured in Austria; and the sovereign himself feels of what importance it is to an empire where the land is so fertile.

The inhabitants of the south of Germany, and particularly in Austria, have a much calmer imagination than those of the northern parts. Generally less given to contemplation, they are less susceptible of enthusiasm. A purer sky, a more genial soil, and a less savage scenery soften rather than rouse their imagination: if they are little susceptible of enthusiasm in poetry and the fine arts, they are more alive to the dangers of their country. Their native soil, the land of their forefathers, the long line of kings who formed the happiness of their ancestors, and of themselves, and recollections of ancient and modern times, all are continually present to their view, and spur them on to generous sacrifices; nor are these sacrifices painful to them, because they love their country: thus, though the Austrians have a calmer imagination than the northern Germans, they have notwithstanding a romantic tendency in their affections.

The Austrian women are very ideal in their sentiments; and their heads are warm at the expense of their repose. They love passionately, and with all the ardour of their nature; and, though Christians, love far from appearing a weakness to them seems a virtue; they think it needs no excuse. As in all peaceful and thoughtful nations, the Austrian women abandon themselves without fear to their sensibility, and think nothing extraordinary that contributes to the happiness of him they love: equally generous and affectionate, even when they are deceived, they sigh in secret, but seldom abandon themselves to despair. It has been thought in France, though upon slight foundation, that the German women were easy of access, because some of them might have been weak; but it was not considered that they are not prepared like the French women against seduction. The German women, in their simplicity of mind, cannot comprehend that a man of honour can ever feign sentiments he does not feel, or ridicule the noblest affections of the soul.

The Austrian nation is, perhaps, the most moral in Europe. If its political conduct has not always been guided by honour, it may be justly said of them, as of the English, that they are far from approving every act of their government. The Austrian people are much too grave to easily adopt that levity of manners, which is too common in other nations, and which turns the arms of ridicule against every thing that is sacred. The sanctity of marriage is still respected in Austria. The conjugal leads to maternal love, and the Austrian women are all, or almost all, excellent mothers.

They are not more ostentatious in their attachment to their children than in their tenderness for their husbands. Divorce, which introduces into families a species of anarchy, has never been allowed by the Austrian laws; and this is not the least advantage of their legislation. The Austrian women in their simplicity and good nature have a charm that is peculiar to them; a mild sound of voice, an air of candour and goodness, flaxen hair, a dazzling complexion, and large blue eyes, would render them too seducing, if their simplicity and modesty did not enforce respect and temper, by the charm of virtue, the too lively impression caused by their beauty; they please the stranger by their sensibility, while they interest him by their imagination.

Without cultivating the fine arts and literature too much, they are not strangers to them; and, when their confidence is gained, they evince considerable knowledge, of which they never make a display. Their presence in society is as agreeable as that of Frenchwomen, and it may be said, that they seem to be more necessary to it. The men are less agreeable than their wives, and generally less amiable. The Austrian women speak with nearly equal facility all the European languages; and French is peculiarly delightful in their mouths. They have much less influence in the world and in society than the French women, but happiness does not depend upon exterior. Family love and tranquillity of mind never tire, and these alone are what they appreciate. The German girls have much more liberty than the French; this liberty, which they never abuse, gives them a greater knowledge of the world. It is to be remarked that, in general, women in Germany have a marked superiority over the men in society. It is astonishing how little agreeable men, and even clever men, are in conversation; neither their ideas, nor their choice of expression, can

convey a conception of what they are capable of in silence, solitude, and meditation. The most distinguished men are so little in the habit of conversing, that without women there would be no society.

Scandal, which is but too often the subject of conversation in our societies, would soon have destroyed that politeness which distinguished the German women, if they had fallen into this vice so common to little minds; but they have preserved the purity of their primitive manners through the goodness of their dispositions, as well as the excellence of their institutions. They are never bigots or fanatics; their religion is as pure and simple as their hearts, and supports them in the miseries of life.—What has been said here of the Austrian women relates to the higher classes of society.

As to the lower orders of women, M. Marcel knows none who have purer and better manners. It is very rare in a village to find a single family that is not in the most perfect harmony. Maternal love is so forcible in these good countrywomen, that it preserves them from faults so common elsewhere; their work and the duties of religion entirely occupy them, and thus they are preserved from all the vices that idleness engenders. In some cantons, however, they may be reproached for being too much addicted to strong liquors, which destroys their health and fortune.

The Austrians, like the Germans, are rather serious than gay; and the men of superior intellect have more genius than wit, and more originality than taste. It is to this want of tact that the monotony of the society in southern Germany may be attributed; but this monotony is not apparent in the familiar intercourse of domestic privacy.

When a person is fortunate enough to be admitted as an intimate friend into a family, he finds a charm and fascination that the stranger cannot meet with, who only sees the German in circumstances where their natural timidity and respect for custom restrain and paralyze their faculties. In seeing them as they really are, it is delightful to meet with men of such pure and excellent hearts in an age so demoralized. It is necessary to see the Germans frequently and long, to find out the extent and solidity of their knowledge. The stranger finds more pleasure in the society of the inhabitants of the north of Germany than of the south. The gentlemen of the northern provinces are not satisfied with seeking the society of the literati, for many of them excel in the sciences and in the higher classes of literature. Princes, and even sovereigns, have rivalled each other in their efforts to give that lustre to letters which they claim from civilization. Thus any little capital, which might otherwise remain for ever in obscurity and almost unknown, acquires celebrity by producing learned men. Gotha, Weimar, and Gottingen are become the Athens of the north, and the centre of instruction to the greatest part of Europe; in a short time the same may be said of Munich.

A nation generally good, and possessing integrity, cannot be otherwise than charitable, and no nation was ever more so than the German. In the large cities there are fewer mansions, and fine private edifices than in France, or especially in Italy; but charitable establishments are greater in number and better superintended. Many of these establishments, founded at first by associations of individuals, have acquired by degrees immense riches, which are employed in the service of the sick and indigent. It is said that at Vienna there is one hos-

pital capable of receiving, in case of emergency, *fourteen thousand* beds. In spite of this prodigality of assistance for the indigent, which apparently would encourage idleness and consequently mendicity, there are but few beggars in Austria; where every man, who can work so as to gain his livelihood, would be ashamed to live at the expense of others. The different charitable establishments, and the work-houses which exist in almost all the cities, and sometimes even in the smallest villages, have greatly contributed to extirpate mendicity.

The cleanliness of the Germans, which charms all travellers, has the happiest effects upon their charitable institutions; it preserves health, diminishes the causes of mortality, and favours the love of economy: the people are indebted to it for a kind of dignity closely allied to decency and propriety; for cleanliness favours, as much as food and climate, the development of the human powers. Perhaps it is chiefly owing to this cause that nearly all the Germans are tall in stature, with strong and well proportioned limbs and fresh florid complexions; but they have in general no delicacy of feature, and but little expression of countenance. Though there are but few ugly men amongst them, yet there are still fewer really handsome; that is to say, of that noble and manly beauty which is seen in the inhabitants of the south of Europe, and which served as models for the fine statues of the ancients. The modern Germans are what Tacitus describes their ancestors to have been: they are almost all pale and insipid, and their mind has not the energy to be expected from their strength and tall stature. In consequence of the progress of civilization and concentration of power, they will certainly acquire, says M. Marcel, more vivacity of mind, and more vigour of character.—Amongst the projects conceived by Joseph II. that of ameliorating the treatment of the insane is worthy of distinction: he gave considerable sums for the establishment of an hospital, where the insane might receive all necessary assistance; and this hospital is supposed to be better regulated than any in Europe.

Though the Germans travel a good deal in the interior of their country, there are not so many conveniencies for travelling as in England, or even in France. The Germans, who do every thing negligently, are never quick enough for travellers; besides the roads are not well kept in repair, nor are the post-horses good enough for expedition. The proper time for travelling is when the snow is on the ground, and the sledges can be used; then all obstacles disappear, and the severity of the cold obliges the guide to second the impatience of the traveller. It is not uncommon to go a league in twenty or twenty-five minutes, and sometimes in less; in these sledge journeys it is very essential not to give way to sleep, which softly steals through the veins. If the traveller sleeps the cold overpowers him, and he perishes a victim to the severity of the climate.

In this analysis we have only mentioned the principal objects; the work itself offers many other very interesting details.

FROM THE MONTHLY REVIEW.

The Sisters: a Novel. 4 vols. Crown 8vo. 1*l.* 8*s.* Boards. Baldwin and Co.

No Enthusiasm; a Tale of the present Times. 12mo. 2 Vols. about 300 pp. in each. 12*s.* Boards. Westley. 1822.

Body and Soul. Crown 8vo. pp. 400. 12*s.* Boards. Longman and Co. 1822.

We presume that the admirable injunction of St. Paul, to be "all things unto all men," has been the cause which has induced the very godly persons of different ages to vary so greatly their mode of attack on the vanities of this world, and, while ridiculing the fashions of this life, often to attempt that task in a fashionable manner. The first effort made by the righteous over-much, after the Reformation, was to decry all human learning as being in itself something carnal and anti-Christian: but to depose *reason* by *argument*, or to exterminate *books* by *writing*, was a proceeding too absurd in the eyes even of these enthusiasts themselves; and therefore, as their age was an age of violence, and burning was the mode of the day, they devoutly recommended that all books unconnected with Revelation should be committed to the flames. Reuchlin, who went considerable lengths in accord with these zealots, succeeded, however, in rescuing from their wrath as many authors as he could by his ingenuity torture into a pious and Christian meaning; and a very happy mode of allegorizing, which had before prevailed with some Christian fathers, was now much improved: not only the Logos, but all the mysteries of the Cabala, were soon discovered in the unconscious heathens; and Plato and Aristotle were accordingly treasured as saturated with evangelical tenets.

As time advanced, the common people began to think that a man might read without being either an atheist, or a magician; and, indeed, some degree of study became a popular sort of employment. On this change, the fanatics turned inspired: they had longer and more permanent visions than any with which they had before been favoured; and their memories and faculties were so much improved, that they were able to retain and to record their spiritual self-abandonments and annihilations. Thus came into the world the exstasies of Jacob Behmen, which are among the earliest specimens of modern godly romances; and in later days the sublime extravagances of Emanuel Swedenborg. Under this head, too, may be classed some of the very eloquent rhapsodies of Mr. Norris and of the learned Henry More in England, as also the reveries of the Quietists in France. In fact, while sensuality was spiritualized, and the heats of a fervent temperament exuberated into splendid imaginations, or dreams of some middle state between this world and another, common sense was baffled and criticism completely at fault; for the more incoherent and incongruous the composition, the more just picture would it be of a dream; and the more strange the circumstances, and unsuitable to this state of being, the more fitted might they possibly be to a better. What measure, in short, could there be found for inspiration; or by what rules were the vagaries of a godly imagination to be judged? Surely, no uninspired critic could presume to analyze Jacob Behmen's wonderful de-

scription of the colours of angels, or venture to inquire whether such high matters were intended to convey any meaning.

Other compositions also appeared, and came in fashion nearly about the same time with the visions, which partook more of human transactions: for in them the spiritual conflicts with the powers of darkness, and the advancements of the soul towards truth, were figured after the manner of mortal warfare, and somewhat according to the images of real life. Of this sort we recollect with great admiration Mr. Bunyan's "Pilgrim's Progress;" though we cannot go so far as one* of the spiritual writers now before us, who would transfer to that singular work the praise bestowed by Johnson on Burnet's memoir of Lord Rochester. Our modern saint, indeed, stickles a little at the word "elegance," but on the whole would rather give Bunyan a cap that does not exactly fit him than leave it with Burnet, who was too much a practical man to be beloved by the truly spiritual. All these pious narratives and spiritual fictions, aided by *lay "Sermons"* and *"Crumbs of Comfort for devout Hearts," and "Divine Breathings,"* and *"Longings of the yearning Spirit for the Cluster of Canaan's Grapes,"* and *The Riches of God's Love to the Vessels of Mercy,"* were great advances towards human compositions: but still the practice of general reading, and, above all, the reading of plays and common novels, was deemed very unsuitable for those who would imitate the example of the primitive Christians.

In another age, as the theatres were kept open, (notwithstanding the imprecations of Prynne and Collier,) and the public would go and see plays, whether edified or not, the holy ones turned play-wrights, and the Bible furnished ample materials for the tragic muse. On the same principle, since people will be so obstinate and perverse as to read novels, though dehorted and enjoined to forbear from such unsanctified food by their ghostly pastors, the anti-seculars of the present day try to divide this house, and endeavour at length to contend against Satan with this his own arm of flesh. We have often noticed in our pages their pious attempts of this kind: but, recently, the virtuous tirades against all the amusements and pleasures of this life, poured forth under the mask of amusing publications, have assumed a much more considerable and important shape; and the press teems with serious preachments, each in three or four volumes, waging war with the powers of darkness under the arch-enemy's own colours;—inculcating all the doctrines of asceticism and mortification in splendid types and on fine wove paper; and decrying any compromise with the usages of the world in the slightest matters, while they themselves issue forth under the deceptive and inveigling title of novels and tales.

It deserves serious consideration from the ultra-devotees, whether, by adopting this plan, they do not run great risk of a worldly as well as a ghostly nature. While they adhered to the old sublime and incomprehensible style, free scope was given to all the glorious excentricities of their imaginations, and they could range fearless and peerless through either the Elysiums or the Pandemoniums of their own creation:—but, in descending to mere novel-writing, and attempting to describe this present state of existence, they have to depicture scenes which it would be affronting to their condition of exaltation, and of disenthralment, to suppose that they can stoop to observe with much

* The author of "No Enthusiasm," vol. i. p. 248.

minuteness. They must also encounter, as rivals and competitors, many whose senses have been directed to affairs around them; who live in the unaccountable belief that there is some reality even in these sublunary phantoms; and whose keen relish of enjoyment unfortunately has not been blighted by disappointment, or withered by discontent. It is certainly a most spirited enterprise to put the lovers of cheerfulness to shame, by tales of entertainment, to banter good humour out of countenance, and to draw off the thoughts of the reader from this world by giving the most particular descriptions of it which the author's unpractised faculties will permit. For gravity and solemnity in its proper place, we—grave and solemn old grey-beards ourselves—have all due respect: but, when staid and serious personages become novel-writers, it is the duty of those poor critics who are fated to read their productions to consider them *as novels;* and to animadvert on misplaced *seriosities* (as somebody called them), and on buskined measures halting in the midst of comedy-tunes. If huge elephants will try to skip and gambol on this uneven earth, after the fashion of silly sheep, spectators must be excused for smiling at their movements; since even in their own paradise, when they wave their proboscis with their best grace and elegance, the satisfaction given partakes in some degree of human diversion.

Though the works before us are very different in detail, they partake of the same general cast and object. All the authors agree in thinking that a person's faith in some particular tenet is of more importance than any other matter in life, though they vary greatly in their notions about this saving tenet;—and all agree that, if a man be so unfortunate as not to have the same notions with the writer himself, he is in a state of jeopardy. The author of "*No Enthusiasm*" favours Calvinism; the spokesman of "*The Sisters*" preaches Calvinistic orthodoxy; and the dissertator on "*Body and Soul*" upholds anti-Calvinistic orthodoxy. We mention these points of distinction in justice or in compliment to the writers, the inculcation of the favourite doctrine being with each the gist of the composition, and the solemn dissertations being the substance, while the narrative is merely interwoven for ornament;—and, of course, each accommodates the facts of his tale to his own spiritual hypothesis. In "*No Enthusiasm*," a young gentleman, who has courted a young lady and gained her affections in his unregenerate state, becomes gradually serious; and, though her regard remains unaltered, he discontinues his addresses because she is *no better* than she was when he fell in love with her. He then recovers a large estate ("the good things of this world,") of which he had been defrauded, and marries a pious lady with whom he had been suddenly smitten before his first courtship. A friend of the hero, who had been only half serious, dies disappointed and miserable, and this furnishes a death-bed scene of much agony and instruction.—Of "*The Sisters*," the one who is sprightly decoys the accepted lover of the serious one, is married to him, runs away with a lord, and dies in great misery. A similar death-bed scene is introduced, with many reflections, and grand effect.—In "*Body and Soul*," a reverend doctor first confounds a Calvinistic minister of the church; afterward, with the help of his curate, refutes two Calvinists; then beats an unitarian off the ground; and at last defends triumphantly every assailable corner of the thirty-nine Articles, together with the damnatory parts

of the Athanasian creed. In this work, the climax does not occur at the close, for the grand pathetic winding-up is in the middle, and a lady decoyed into Calvinism is described as the inmate of a lunatic asylum.—It may be supposed that the writers omit no circumstance of the awful and the terrible in their death-bed scenes, and in the lunatic asylum: yet, to speak honestly, though we perceive nothing of extenuation in these particulars, and no want of dark colouring, we do not think that the forte of any of them lies in the pathetic; and, if we were to indulge in conjectures, we should surmise (on several accounts at least) that some of the works before us were the performance of elderly persons of the fair sex. Our fair readers will give us credit, we hope, for drawing this conclusion from the particular merits of these productions which we are going to mention, rather than from their defects, on which we have been dwelling perhaps too long. Though the stories are not particularly well contrived, nor the incidents uncommonly well managed, and the reasonings or prosings which are the staple are neither very new, nor very conclusive, yet in all these tales the niceties of dress, the peculiarities of manner, and the touches of character, are sketched with a superior hand; and the humour and archness, which peer through these descriptions, might lead us to attribute their composition to that sex whose wit, and native shrewdness and *gaiété de cœur*, even the discipline of austerity can never entirely extirpate.—We shall quote, for the diversion of our readers, from each of the works the passage which we deem the happiest of this kind; regretting that the writers did not discover that they were "most themselves" when they were in these earthly moods.

In "*No Enthusiasm*," we have an account of the appearance and conversation of an old low-bred limb of the law, which is very characteristic:

"The next day Falkland rambled about the town in another direction, and immediately after dinner called again on his relation Mr. Sturdy. That gentleman had returned to town punctually at his appointed time, and our hero was introduced to him without ceremony. His appearance was not calculated to impress a stranger in his favour, though his reception was sufficiently cordial. Sturdy was a man about sixty years of age, with a broad impenetrable face, in which the mouth was not the least prominent feature; remarkably thick-set, and of a height which, if his bulk had not been correspondent to it, would have seemed almost gigantic. He was dressed in a suit of clothes which had formerly perhaps been black, although its tarnished appearance, and patches of snuff and powder, made it difficult to determine with certainty its original hue. He appeared to be much less studious, in his dress, of elegance than of ease, and the pernicious fashion of *ligatures* seemed to be totally excluded from the style of his habiliments. He was surrounded by papers, or rather buried in them; and on Falkland's addressing him, presented a hand which *perhaps* had *sometimes* come in contact with soap and water, though certainly at some remote æra of his life.

"'Sit ye down, Cousin Falkland, sit ye down,' said the lawyer, 'I am glad to see you in London.—Here, Marshall,' ringing a bell, 'let this note go to the city—and—Ah! I read your poor father's death in the paper—Eh?—Are those costs taxed in the Exchequer?—Oh! and mind Heywood don't forget to enter that record for trial—No, no, Mr. Falkland,' continued he, observing that our hero made a motion to retire, when he found his friend so much engaged, 'sit ye down, I'm not busy—only whenever I happen to be absent for a day—call at Silvester's too for that conveyance—I can't imagine the reason, but I always find that no business is ever half so pressing as a marriage settlement.'

"All this and a great deal more was delivered in a slow and measured tone of voice, and seemed to be the mere effect of great press of business, and to have in it not a particle of ostentation. But Mr. Sturdy at length found time to direct his

undivided attention to his relation's affairs; and in truth he entered into them with a sagacity from which the latter augured favourably, and with a degree of interest, which the multiplicity of his business seemed by no means to promise. Mrs. Falkland on her husband's death had taken the precaution of laying her hand on all the papers she found in the house, and her son had brought them with him to town, for Mr. Sturdy's inspection. This, however, was a task which, as the papers were pretty numerous, and extremely ill assorted, he could not promise to undertake immediately; but Falkland was satisfied to observe he did not intend to delay it long. He was in the mean time extremely anxious to get some intimation of Sturdy's opinion of his case, not considering that he was as yet totally ignorant of it; but in this he was completely baffled. The cautious lawyer avoided every hint which might by possibility commit him. 'But do not you think it strange, Sir,' said Falkland, 'is it indeed possible that my poor father could have been thus completely ruined, without some gross rascality practised by this Monckton? I'm sure his expenses would not have done it.'

"'Why, Cousin Falkland,' replied the other, 'if you had seen as much as I have, of the ill effects of a man's neglecting his affairs, you would cease to be surprised at any thing. It's a great pity your father did not consult me when he first found himself embarrassed. But that's the worst of it, you see. Some men never come to their lawyer, or their physician, till their case is desperate; and then if they can't do impossibilities, they set them down as a pack of asses.'

"'At all events, Sir,' said Falkland, 'that will not be our conclusion.'

"'No, no; may be not, may be not,' answered Sturdy, in a tone of voice which seemed plainly to indicate he thought the contrary; 'but pray, Cousin Falkland—you must be aware that it will take time to unravel affairs of this intricacy, and you should prepare yourself for the worst. What do you mean to do with yourself pending the legal proceedings? You must not be a dead weight upon your mother Her jointure, if I remember right, is but slender.'

"This was the very point Falkland wanted to lead him to. He therefore quickly took it up, and after expressing the sense he felt of his relation's kindness, told him that his poor father, never doubting he should leave him a very handsome fortune, had not brought him up to any profession; but that he had received a regular education, which he was now only anxious to turn to some advantage; that his main object was to detract as little as possible from his mother's scanty provision, and that he had some thoughts of adopting the profession of the law, if no insuperable objections occurred on the subject, to Mr. Sturdy. He thought by showing this predilection for his profession, to conciliate the good opinion of the old gentleman, as well as to make the best use of his information and experience. Whether he judged from Mr. Sturdy's appearance and conversation, that there were few other subjects on which his opinion would be valuable, or whether, if he did form that opinion, he was correct in it, are points of some doubt. Certain it is, however, that he gave him not the slightest intimation of his dramatic propensity, and did not even consult him whether he should make his first attempt in the sock or the buskin.

"'You've some thoughts of the law, have you, Cousin Falkland? What—you'd like to wear a gown and wig?'

"Falkland answered, it was one of the things he had been considering.

"'It's an uncertain profession,' returned the other, 'and for one man that makes a figure in it, at least one hundred hardly get salt to their porridge.'

"'But surely, Sir,' said Falkland, 'industry and perseverance, with a tolerable capacity, will overcome any difficulties.'

"'Yes; but a man may have all the industry and perseverance, aye, and all the capacity in the world, and yet if nobody knows of it, he may sit all day with his hands in his pockets, listening to the harangues of those who have not one-tenth of his brains.'

"'But suppose, Sir,' said Falkland, somewhat cooled in his legal ardour, 'suppose we put out of the case the higher honours of the profession. Do you imagine a man with the qualifications I have mentioned, would be utterly without some chance of at least securing an honourable independence?'

"'No, no; not so bad as that neither,' replied the other: 'I think if you were now to enter yourself for the bar, and to spend the five years which must elapse before you can be called, in hard reading, and were then to attend regularly in the courts for another five years, it is very probable you might make in a few more years—let me see—aye—I shouldn't wonder if you made—three or four hundred a year.'

"This was a most appalling calculation for poor Falkland, and it almost extinguished every ray of hope from the pursuit of legal eminence. He could scarcely believe indeed that it was not an exaggerated picture; but this his cousin's better information forbad his hoping. At all events, he thought such a phantom not worth the pursuit; and yet, after the first emotions of surprise were over, he could not but wonder, if this representation were correct, how it was that so many men had risen from small beginnings to the first emoluments and dignities in the profession. He knew the fact to be so, but he had yet to learn that a barrister without fortune, if he be eventually successful, must starve the first half of his life, in order to have more money than he can dispose of ever after. Mr. Sturdy, on the other hand, thought he had drawn a very flattering picture of the emoluments of the law; and mistook our hero's silence and thoughtfulness for acquiescence in his undertaking. He therefore concluded by making him an offer of his assistance, and promised if he made up his mind on the subject, to introduce him to a particular friend of his, a barrister in great practice, under whose direction he thought he could not do better than place himself."

The biographer of "*The Sisters*" gives us this description of a learned lady at a ball:

"'Oh, Evanmore! fly directly, and bring her to us—you see she does not know where to go,' cried Rosalind, bowing most graciously as she spoke to a young lady of singular appearance, who was standing close to the door, and with an opera glass held to her eye, reconnoitring the assembled group with all the cool composure of a General at the head of his troops. 'Yet stay, let me give Felicia some hint of the lady's character, that she may enjoy the treat more. The object of your well-founded amazement is that most unique animal of the biped species, a philosopher in petticoats. That is, a sort of incongruous, heterogeneous mass of learning, ignorance, and folly; either laughable from its absurdity, or disgusting from its pedantry. She reads her Bible in Hebrew, her Testament in Greek, her Prayer-book in French, and her novels in German—so at least her grandmamma says. Then, as she is always laudably engaged in the pursuit of learning, whenever you meet her you are favoured, in addition to these standing dishes, with a taste of what she is then hashing up for the public, which is generally decided by the fashion of the day, or the situation in which she happens to be placed. Thus, about four years ago, when it first became the rage to crowd every room in your house with flowers and exotics, she was a botanist; quoted whole pages out of Darwin's Loves of the Plants, and stunned your ears with Monandria, Diandria, Monadelphia, Polyadelphia, Fulcra, Folia, Fructus, &c. &c. And really, while this was her hobby, her rides were as amusing to her friends as herself; but unfortunately happening one evening to describe, rather too minutely, the marriage of a white rose-tree with a black currant bush, from which strange union she expected a sort of magpie-coloured, mule bud, Lord Edgermond laughed so heartily, and teased her with so many questions, her modesty took the alarm; or rather, perceiving that she could no longer show her knowledge without exciting ridicule, she relinquished the study altogether (for display is her object), and took to one where she might canter her favourite Pegasus without apprehension or control. At one time she affected to be a mineralogist and lapidary, and then, like the good girl in the fairy-tale, she never opened her mouth but some precious stone fell out of it, from the diamond of Golconda to the pebble of Scotia. She bored you with accounts of spars, crystallizations, stalactites, petrifactions, fossils, bitumens, metals perfect and imperfect, and without mercy, or any compunctious visiting of conscience, tore up the inside of poor old mother-earth to supply her with topics of conversation. She has, in short, a little knowledge of every thing; a little of languages, a little of botany, a little of mineralogy, a little of conchology, a little of chemistry, a little of ornithology, a little of meteorology, &c. &c., and precious little it is. If a philosopher could look into her head, like the lover in the Spectator, who had the privilege of viewing his mistress's brains, I verily believe he would see much the same as he did, with the addition of some crabbed words, and heads and tails of the sciences. She appears, however, wonderfully wise when you are first acquainted with her; and I have seen as much consternation exhibited in a party where she has, after having been long studying how to display herself to the greatest advantage, pounced upon a poor female acquaintance, as when a hawk or a kite, after hovering some seconds in the air, stoops on a defenceless chick, to the terror of the farm-yard. But these literary alarms soon wear off on

acquaintance, for she is all *écorce*, a mere outside shell of learning, no nut to satisfy the palate after the eye has been sufficiently gratified. Indeed she always reminds me, when she is preparing to strike her auditors dumb with the profundity of her wisdom, of the Turkish cry, 'In the name of the Prophet—*figs*.'—As she is now the inhabitant of a sea-port, conchology will be the order of the day: you are a stranger, and, mark me, she will burst upon you like the rushing of a cataract, in her literary character: therefore be prepared, and don't feed her egregious vanity by seeming alarmed; for she is never more delighted than when, by some of her enigmas, she sees she has completely puzzled her audience. Meet her with her own weapons. When she cries univalve—do you say bivalve. When she talks of corallines—do you speak of zoophites; and if you find yourself in a dilemma, or as your dear Jenny would say *quandary*, do as I have often before done, intrench yourself in some high-sounding words and unintelligible phrases, and get handsomely out of the scrape."

The best delineations in "*Body and Soul*" are those of the newly married Mr. and Mrs. Griper, and of an old Sea-Captain making his advances to a religious widow.

"When the dinner-hour arrived, Dr. Freeman found the party assembled. After he had addressed Mrs. Trustwell and her daughter, his kind host, taking him by the hand, introduced him in form to Mr. and Mrs. Griper, both of whom returned the salutation with the most grave decorum. There was the struggle of a smile evidently visible on the lips of Alexander, as he watched this august ceremony, and kept up with his eyes a kind of telegraphic communication with his sister: it required, indeed, some command of countenance to stand this interview. The bride had, by many degrees, passed the meridian of life, and time had set his envious mark upon her. She was 'gaunt, lean, ossified, and long;' her face narrow, and striped with wrinkles, over which was suspended a nose which acted as a gnomon to the dial from which it projected. Her reading had, in earlier life,—that is, until she had relinquished the hopes of promotion, and had actually taken out the brevet-rank of Mrs. to her maiden name,—been confined to trifling subjects, to romances, and to tales of slighted love. She had formerly been able to play upon the Virginals, which she now dignified by the name of the Piano; and even till very lately, in the society of those of her own standing, she occasionally ventured to breathe an asthmatic air of olden times. Her dress suited with her years and her new situation. It consisted of a fabric raised upon her head, formed by making every hair to stand as it would on the glass-legged stool of an electrifying apparatus, surmounted by a cushion, placed thereon to imbibe the long wire-pins to which the cap was appended. Her waist was long and tapering, to which was fastened a silver-washed tin cornucopia, there placed for the reception of a large bouquet, which seemed to have been the produce of the kitchen rather than of the flower garden. Her gown was a rich grogram, so thick, that whether in wear or not, it pertinaciously kept its erect position, and when moved, made that strong rustling noise which rendered it unnecessary upon visits of ceremony to announce her approach. When erect, her stature was assisted in its towering height by the aid of two props to the heels of her shoes; two stunted columns of the Tuscan order, which preserved a false perpendicular, by reason of the unequal pressure above. She seemed to possess only one advantage over her brother, and that was in having had greater experience from a longer residence upon earth. She was occasionally cheerful; but the disposition was checked whenever she turned her eye upon Mr. Griper, who maintained the most obstinate and inflexible gravity.

"He was a very tall, thin man, with a long yellow face and sharp visage: his long matted hair, impelled by its own weight, hung straight downwards; while a narrow cravat displayed a neck brown and folded, like the leather of a pair of bellows. He wore a long, black, straight-cut coat without a collar, but with pockets large enough to answer all the purposes of a wardrobe: he had flaps to his waistcoat; thick black worsted stockings, covering a pair of long legs of equal thickness everywhere, and planted in a pair of shoes extravagantly capacious, ornamented by square silver buckles, corresponding with those appended to his breeches-knees. Such was the Reverend Mr. Griper, who had entered into the pale of matrimony to ensure a handsome provision for his latter days, and a patient companion disposed to swallow the doses of religious rhapsody, in which he was a wholesale dealer.

"When dinner was announced, Mr. Trustwell stepped forward to offer his arm to the bride; who, casting a smirk of approbation upon him, and another of encouragement transversely upon Mr. Griper, stepped forward; the rest of the party following in couples, at an awful distance behind them, to admit sufficient space for the trail of Mrs. Griper's gown; which, in performing the part of a besom sweeping the staircase, was accompanied by a rustling noise, resembling a shower of hail in a thunder-storm upon the stage.

"The conversation at table was general and animated, supported as it was by the host and hostess, Miss Trustwell, her brother Alexander, and the Doctor; while Vincent and Mr. Griper seemed waiting in reserve, ready only to explode when a spark of religious kindling should ignite them. The bridegroom, however, was too actively engaged in answering the demands of a voracious appetite, to waste the little time which he seemed to think would be allotted to his repast; for though his body, from the length and thinness of it, appeared ill-adapted to the reception of much food, it was astonishing to see with what dexterity, and with what perseverance, he endeavoured to obtain a rotundity of form, and how successfully he washed down with deep, but weak potations, the obstructions which were heaped on the turnpike leading from his jaws to the lower regions of his body. In all this he was the direct reverse of his bride, who kept nibbling at the breast of a chicken, occasionally sipping from a thimbleful of wine, which she as delicately touched with the parchment of her lips, as if she apprehended their coming in contact with aquafortis.—

"The season of love is the season of poetical inspiration; and many were the attempts which the Captain made to assail the strong-holds of the lady's heart, by exalting her opinion of his talents, and inflaming her with the ardour of his affection. His mode of disclosing the labouring passion of his breast was not so singular as it was affecting; it was expressed in the following rhapsody, which was delivered at the close of an evening visit, with the vice-like grasp of a hard hand, and the upward cast of an enamoured but a blood-shot eye:

"Oh Cupid, god of wild desires!
Venus, mistress of the loves!
Oh quench, oh quench these inward fires;
Hither drive your purple doves.

"Waft yourselves upon the ocean
Of the blue and cloudless sky,
For, alas! you have no notion
How very near I am to die—

"To die—in one ecstatic burst
Of a non-descriptive joy;
I burn, I burn, oh slake my thirst—
Raging loves my senses cloy!

"Tho' in battle I've been wounded,
And by waves have oft been tost,
Until now I ne'er was grounded,
Ne'er till now have I been lost—

"Lost—in fiercest adoration
Of her many various charms,
Ye gods! accept of my prostration,
Give, oh give her to my arms!

"The conclusion of these lines was truly poetical, because it was the height of fiction in the author to represent himself as possessing two arms, when he evidently had but one. This mistake did not, however, escape his observation, and if he could have altered the sentiment without altering the rhymes, he would have done so; but it was revolting from his mind to represent himself as a dismembered lover; besides, as he had once possessed the full compliment of limbs, he suffered the stanza to remain. But the result of all this was not what he had anticipated; for though the lines breathed an unequivocal avowal of his love, yet the lady's sensibility was altogether shocked at the profanation of invoking heathen deities, which, she said, were only other names for demons; and the offer of prostration to them amounted, in her opinion, to sheer idolatry. Her displeasure, therefore, was wofully excited by this unhappy effusion, and would probably have

proved, for some length of time, fatal to his suit, had he not soon afterwards offered a more congenial, serious, and approved effort of his muse.

"Here, a vile but contrite sinner
Seeks a saint endow'd with grace,
Fain and fairly would he win her
In the semblance of thy face.

"Holy maiden! know I love thee;
Religion's voice in thee I hear;
From thy presence do not drive me;
Methinks I feel an holy fear.

"Storms and tempests I've not heeded,
They were all the sports of Fate,
Other lessons I have needed,
To remind me of my state.

"With vice in every shape infected,
From thy sight I ought to flee,
But I feel myself elected,
To partake of bliss with thee.

"Can'st thou wish to stop the torrent,
Or the trade-wind in its course?
Can'st thou meet the storm abhorrent,
Or unshrinking stem its force?

"Then, seek not, lady, to reject me,
Nor my fondness to reprove;
To thy sweet embrace elect me,
Let me revel in thy love!"

These are happy specimens. The writer of "*No Enthusiasm*," however, except in *drawing* the character of the attorney, and that of a plausible gentlemanly barrister, is uniformly dull. The author of the tale of "*The Sisters*" is of a much higher cast: but the moral reflections are endless, and are often mere scraps of Dr. Johnson and Mrs. H. Moore recooked: though sometimes the thoughts are taken from other writers, so unfortunately disguised or misapplied as to be scarcely recognised. The writer of "*Body and Soul*" is directly opposed to the others on the point of amusements, and many of the observations on that subject are very cleverly expressed: but the poetry interspersed, by no means sparingly, is not always equal to the verses which we have extracted; and sometimes the lines have an Irish air, as when a wish is expressed to *rise* like the *setting* sun:

"So, when my pulses cease to play,
Serenely close my evening ray,
That I may rise, death's slumber done,
Glorious like thee, sweet setting sun!" (P. 98.)

FROM THE LONDON LITERARY GAZETTE.

Specimens of the Russian Poets, with Introductory Remarks. Part II. By John Bowring, F.L.S. 12mo. pp. 271. London, 1823. Whittakers.

While imprisoned in France, Mr. Bowring solaced the heavy time by finishing this sequel to his Russian Anthology, of which the first part has been so favourably received by the public.

An Introduction fretted with the philosophy of politics, is but ill placed in front of such a production; but it is better that the author should evaporate all his sore feelings in this way, than that he should carry them into the body of the work. In the poems the Russian national character is strikingly displayed; and the other traits of the selection are thus fairly stated by Mr. Bowring:—

"A variety of poems immediately connected with the earlier history of Russia, and others representing the peculiar habits of the Russians, are introduced. The national songs, especially, will, I trust, excite some attention. These are the poetry of the people. These are the fragments whose authors are never raised from the darkness of oblivion—these are the joy and the study of the peasantry, their consolation in the dreariness of their wintry dwellings, conveyed from tongue to tongue through many a generation. These are no subjects for criticism, for criticism cannot reach them—it cannot abstract one voice from the chorus, nor persuade the village youths and maidens that the measure is false, or the music is discordant. The forms of versification, though some of them are rude and irregular, I have endeavoured to preserve, as a part of their original charm. I have heard them sung in the wooden huts of the cottagers; and have been cheered by them when the boor has whirled me in his uncouth sledge over the frozen snow. The rude melody, often gentle and plaintive, in which they found utterance, still vibrates in my ear. I ask for them no admiration—they are the delight of millions. The fame of the Iliad is nothing to theirs!"

The authors particularly quoted, besides the anonymous songs, are, Lomonossov, (religious) Derzhavin, Dmitriev, Zhukovsky, Karamsin, Dolgorukov, Batiushkov, Merslakov, Voeikov, Muraviev, Kapnist, Petrov, Shatrov, Væsemsky, Milonov, and Khovansky.

Of all these Zhukovsky is, and it appears to us from the specimen of his "Minstrel in the Russian Camp" very deservedly, the most popular among the modern bards. The length of this piece however induces us to postpone its consideration, and we select as specimens for present use such shorter compositions as may serve to exemplify the poetry of Russia and Mr. Bowring's translations.

"The Legacy" by Dolgorukov, is of a pathetic and pleasing melancholy.

When time's vicissitudes are ended
Be this, be this my place of rest;
Here let my bones with earth be blended,
Till sounds the trumpet of the blest.
For here, in common home, are mingled
Their dust, whom fame or fortune singled;
And those whom fortune—fame pass'd by:
All mingled—and all mouldering:—folly
And wisdom—mirth and melancholy—
Slaves—tyrants—all mixt carelessly.

List! 'tis the voice of time—Creation's
Unmeasured arch repeats the tone;
Look! even like shadows, mighty nations
Are born—flit by us—and are gone!
See! children of a common father,
See stranger-crowds, like vapours gather;
Sires—sons—descendants—come and go:
Sad history! Yet even there the spirit

Some joys may build—some hopes inherit,
And wisdom gather flowers from wo.

There, like a bee-swarm, round the token
Of unveil'd truth, shall sects appear,
And evil's poisonous sting be broken
In the bright glance of virtue's spear.
And none shall ask—What dormitory
Was this man's doom—what robes of glory
Wore he—what garlands crown'd his brow—
Was pomp his slave?—Come, now discover
The heart, the soul—Delusion's over—
What was his *conduct?*—Answer now!

Where stands yon hill-supported tower,
By Fili, shall I wake again,
Summon'd to meet Almighty Power
In judgment—like my fellow men.
I shall be there—and friends and brothers—
Sisters and children—fathers, mothers,—
With joy that never shall decay;
The soul, substantial blessings beaming,
(All here is shadowy and seeming)
Drinks bliss—no time can sweep away.

Friends, on my brow, that rests when weary,
Erect no proud and pompous pile:
Your monuments are vain and dreary,
Their splendour cannot deck the vile.
A green grave, by no glare attended,
With other dust and ashes blended,
O let my dust and ashes lie;
There, as I sleep, time, never sleeping,
Shall gather ages to his keeping,
For such is nature's destiny.

My wife, my children shall inherit
All I possess'd—'twas mine—'tis theirs;
For death, that steals the living spirit,
Gives all earth's fragments to its heirs.
Send round no circling briefs of sorrow,
No garments of the raven borrow;
'Tis idle charge—'tis costly pride.
Be gay, through rain or frosty weather,
Nor gather idle priests together
To chant my humble grave beside.

Cry, orphans!—cry, ye poor!—imploring
The everlasting God, that *He*
May save me when I sink—adoring—
Amidst his boundless mercy-sea.
My blessing to my foes be given,
Their curses far from me be driven,
Nor break upon my hallow'd bliss;
God needs no studied words from mortals,
A sigh may enter heaven's wide portals—
He could not err—He taught us this.

No songs, no elegy—death hearkens
To music ne'er though sweet it be:
When o'er you night's oblivion darkens,
Then let oblivion shadow me.
No verse can soften Hades' sadness,
No verse can break on Eden's gladness,
'Tis all parade, and shifting glare:—
A stream—where scatter'd trees are growing,

A secret tear—in silence flowing—
No monument as these so fair.

Such slumber here—their memory flashes
Across my thoughts.—Hail—Sister! hail
I kiss thy sacred bed of ashes,
And soon shall share thy mournful tale.
Thou hast paid thy earthly debts—'tis ended
Thy cradle and thy tomb are blended,
The circle of thy being run;
And now in peace thy history closes,
And thy still'd, crumbling frame reposes
Where life's short, feverish play is done.

I live and toil—my thoughts still follow
The idle world:—my cares pursue
Dreams and delusions, baseless, hollow,
And vanities still false though new.
Then fly I earthly joys—I find them
Leave terror-working stings behind them:
"Beware! beware!" experience cries;
Yet ah! how faint the voice of duty,
One smile of yonder flattering beauty
Would make me waste even centuries.

Of the songs, for example's sake, we shall copy the most curiously constructed and decidedly national.

Ne golubushka v'chistom polæ vorkuet.

O'er the meadow not a turtle speeds or flutters,
And the twilight no dew-drops scatters over:
In her chamber a young maiden her griefs utters,
As she thinks, drown'd in tears, of her lover:
Her bright eyes with bursting sorrow are loaded,
Her heart with disappoinment has been goaded.

"My beloved! my beloved! my heart's master!"
She cried, in her agony overflowing:
Her sighs thicken'd—her tears they hurried faster
"O some viper my bosom must be gnawing,
Some poison must my life-blood be congealing!—
No! thy absence creates this bitter feeling.

"'Tis no traitor, 'tis no false one who has left me,
No vile-minded, no polluted, no cold-hearted—
How sad was the moment which bereft me—
How bitter my sorrow when we parted!
When I lost thee all was darkness about me;
Life and death are indifferent without thee.

"'Twas not violence fetter'd our affection;
'Twas thy prudence, 'twas thy virtue that enchain'd me—
In thy bosom love and friendship found protection,
And the heart that was worthy of me gain'd me:
We are pledged not—we are sworn not—for brighter
Is the chain of sweet sympathy—and tighter.

"Then return thee, my beloved! and forget not
Thou controllest all my joy and all my sorrow;—
Think of me, my heart's confidence! and let not
My thoughts any gloomier shadows borrow:
'Tis for thee—'tis for thee *alone*—that I grieve me—
Come again, thou sweet spirit! to relieve me."

Akh! kabi na tzvæti ne Morosi.

If the frost nipp'd the flow'rets no more,
If in winter the flow'rets would bloom,
If the woes of my spirit were o'er,
My spirit should cast off its gloom:
I would sit with my sorrow no longer,
O'erwatching the dew-cover'd field.
I said to my father already,
Already I said to my taper,
"Nay! marry me not, O my father!
O marry me not to a proud one!
O seek not for high piles of riches,
O seek not for palaces fair,
'Tis man, not his palace we dwell in,
'Tis comfort, not riches, we need!"
I hurried across the young grass,
I threw off my sable fur cloak,
Lest its rustling perchance might betray me,
Lest its buttons of metal might tinkle—
Afraid my step-father would hear me,
And say, "She is there," to his son—
To his son—who is doomed for my husband.

FROM THE SAME.

REMARKABLE INSTANCE OF ANIMAL VITALITY.

Accounts of animals found imbedded in the hearts of trees, and in solid rocks, have never been so well authenticated as to establish beyond question the existence of those extraordinary phenomena; but a recent instance has come under our own cognizance, which affords distinct proof, not only of the preservation of life, but of the natural growth and progress of an animal in a state which seems to preclude every idea but that of annihilation.

The history of the specimen to which we allude is short and curious. Among the woods imported into this country for veneering and other ornaments of furniture, one of the dryest, hardest, and most beautiful, is the zebra wood. In December last, in adzing the edges of an inside plank of this tree, about two inches within the edge of the plank, a species of *Cerambyx* was discovered. Its position was longitudinal with the grain of the wood; and the sides of the cavity containing it were smooth. The wood itself was perfectly dry, and had been brought to the saw-mill, near Stratford, in Essex, from the London docks, where it had probably lain many years. On the 31st of December, the specimen was carried to that able naturalist, Mr. Clift, College of Surgeons; it was then in a torpid state, and apparently dead; but on that gentleman's bringing it near the fire, it recovered its vivacity, and ate some brown sugar very greedily. Being placed in a warm situation, it lived till the 15th of January, taking very little nourishment except milk or water. It was kept upon a chimney-piece on some twigs of a tree, under a bell-glass; so that perhaps the temperature might have been too high, and its powers too much excited to allow it to live through the winter.

There was another specimen in the same log of wood, which was

destroyed by the teeth of the saw, and led to the discovery of his more fortunate companion, who not only escaped a violent death, but has thrown a curious light upon Natural History.

The animal thus remarkably found and revived in our climate, is two inches long. The colour darker than a cinnamon brown; and what, considering his habitat, was the most wonderful, his head was armed with two delicate feelers, twice the length of his body. How these tender filaments were disposed in the hard wood puzzles conjecture: while alive it usually carried these antennæ over its back, but occasionally brought them forward. Having ten joints in each, it had the power of folding them under its body. We are sorry that we cannot accompany this account as we wished with an engraving of its subject; but the regulations of the College of Surgeons forbid the grant of such favour to any publication not *altogether* scientific; and ours is, we hope, largely literary.

Some of our readers may remember an instance somewhat resembling the present, and which also originated under very singular circumstances. A clerk in one of the courts at Guildhall had been often staggered, if not frightened, during his labours, by the sound of something like what superstition has named the *Death-watch*, too near his desk to bode any good to him. This old desk had been a court appendage for a number of years: and our clerk's astonishment may be surmised, when one day, his attention being peculiarly attracted by the ticking noise, he first saw a minute hole perforated to the surface from the inner wood, and soon after a portion of the insect instrument by which this operation was performed, protruded. With his penknife he carefully enlarged the orifice, and ultimately succeeded in digging out an animal resembling the Cerambyx of the zebra wood, but of brilliant colours and smaller dimensions. This specimen was presented to Sir J. Banks, and is, we presume, still in the collection left by him.

The inference which may be drawn from these memorable phenomena, we leave to the natural philosopher: in a popular point of view they are worth recording for their extreme curiosity.

FROM THE SAME.

AEROLITE.

An official report has been made to the prefect of the Vosges (and duly certified by the authorities near the spot) on the aërolite which fell in the commune of La Baffe, on the 13th of September last.

It describes the storm, which commenced at 4 o'clock A. M., and the dryness and highly electric state of the air; but as it goes more into minutiæ than seems necessary to follow, we copy only those passages which are most observable.

"The clouds were at a great elevation, their appearance threatening, their direction variable; they were not united in great masses, but grouped here and there in the most picturesque manner: they filled up all the south and west, the east alone remained; but its bright azure was soon obscured, and the aspect of the heavens at sunrise was peculiarly ominous. The flashes of lightning were uncom-

monly frequent and vivid: several presented the most brilliant coruscations, so as to be generally remarked as something extraordinary. A great number of them had a direction towards the earth in broken lines, more or less oblique. The noise of the thunder was singular: at a distance, the detonations were abrupt, of short duration, and repeated in quick succession, and resembled the distant sound of cannon. When heard closer, the loudest claps were confined to a hissing like that of sky-rockets, interrupted by burstings and cracking, and terminated by a succession of explosions, like an ill-executed platoon firing.

"About seven o'clock there was suddenly heard in the air a noise like that of a new or ill greased carriage, proceeding rapidly over a rough and stony road. Its direction was from south-west to north-east, like that of the storm, in a plane inclined to the horizon: its duration was seven minutes at the least; its force increased as the meteor approached, and at length became terrific. It was heard not only by the inhabitants of Baffe, but in the neighbouring communes; and it was very distinct from the noise of the thunder, which rolled at the same time in different parts of the heavens.

"Nicholas Etienne, a farmer, of La Baffe, with an empty carriage drawn by oxen, was within a quarter of a league of the village, and hearing, notwithstanding the noise of his carriage, those strange sounds approach him, he stopped. His statement is, that he then heard a cracking like that of breaking a great number of bottles, mingled with the principal sound, which he compares with that of a howitzer, then a low explosion, at the moment that the meteor struck the ground. He also affirms that he saw the meteor burst at the instant of the shock, and several fragments fly in the direction exactly opposite that of the storm; but the aërolite itself, while still in the air, escaped his sight,—doubtless in consequence of its rapid motion. He says further, that the explosion was not accompanied, or immediately preceded, by flashes of lightning or any other luminous appearance.

"Etienne having recovered from his alarm, alighted from his wagon, and went to the spot where the explosion took place, which was on the road itself, not above a dozen paces ahead of his team. He found a round hole on the pavement; the sides of it were tinged with smoke; at the bottom were the fragments of a mass of stone, blackened on the upper surface, gray within, grainy, friable, sprinkled with sparkling points, and ferruginous threads, in a metallic state, depressed on the interior surface, and irregularly rounded in the other points, at least as far as can be judged from putting together the pieces that remained, for a great number had bounded into the adjacent fields. He thinks the whole of this aërolite might be equal in size to a six pound cannon ball: he did not venture to touch it, for fear of burning himself; but having wetted it, he found the heat very supportable.

"The moment of the apparition of this phenomenon was when the front of the storm reached the zenith, which was all illumined with electrical fires. The thunder had rolled before, and it roared with the greatest violence, though often in an unusual manner; the rain, which began to fall, increased. Etienne picked up these thunder stones (so he called them), got into his wagon, and hastened home.

"Twenty farmers, who were at work in the neighbourhood, witnessed all that is above related. They afterwards examined the aërolite,

and as most of them took specimens, Etienne himself had only one left, which he surrendered to the prefect.

"Search is making for the fragments reported to have splintered off from the main body, and also in a meadow near the village, where something else is said likewise to have fallen."

FROM THE SAME.

MUSIC.—LONDON INSTITUTION.

[The first lecture is generally introductory.]

On Tuesday, Dr. Crotch delivered his second Lecture on National and Scientific Music, in the Theatre of this Institution. A very numerous and highly respectable audience was assembled on the occasion. General satisfaction and delight appeared to pervade the hearers during the performance of the Lecture. As it consisted, for the most part, of recitations of select Airs and Melodies from ancient Scotch and Welch music, we conceive the manner in which we have described it to be peculiarly appropriate. The learned Professor, after a very few remarks on the subject of National Music in general, proceeded to display his well-known powers by playing some delightful specimens of Scotch highland and lowland music. Several of these were of the pathetic and solemn kind; others were lively and mirthful. In one denominated *The Western Isle Dance*, we were much pleased by the vigour of expression and the richness of melody with which it filled the ear. In the song, *When bidden to the Wake or Fair*, which was given on the grand piano-forte with much effect, though avowedly of Scottish origin, a remarkable conformation was perceivable to the Irish strain of music. *Love is the Cause of Mourning*, appeared to unite also the pathetic and the lively. Of Compound Melodies three specimens were produced—*A trip to the Jubilee, Jack on the Green*, and *A trip to Mary-le-bonne*. They were delightful, from the discrimination and taste they evinced. In the performance of *Washington's March*, which, the Professor observed, was peculiarly adapted to the bagpipe, it was truly gratifying to hear with what ability and accuracy the piano-forte was made to express a conformity to the national instrument for which it was originally composed. But for the distinguishing modulation of the tones of the instrument on which it was performed, it might almost have been mistaken for the other, or at least confounded with it. Of the same cast was the air styled, *Were I assured you'd constant prove*. That of *Roslyn Castle* was pathetic and tender. It was stated generally, and with unquestionable truth, in the conclusion of this division of the Lecture, that the Scottish music, is for variety, melody, and expression, superior to that of most other nations.

From expatiating upon and performing these selections, Dr. Crotch proceeded to Welch harmony. His first piece was, *The tune of David the Prophet*, a production of the eleventh century, deciphered from an ancient MS. by Dr. Jones. The air of *Sweet Richard*, was of a different nature, but very descriptive of the peculiar temper and taste of the people amongst whom it originated. Some most charming mili-

tary Welch music, especially *The Monk's March*, and *Come to Battle*, fully satisfied us of the power and influence it must have possessed, at the time, on the feelings of those who were preparing for or entering into an engagement. The *Rising Sun*, and *Awake Harmonious Strings*, afforded much gratification by their diversity from those which had preceded them, though they still preserved a general uniformity. With these selections the Lecture concluded.

To those who have only or long been accustomed to English harmony, the peculiar termination of most of the Scotch Airs appears unfinished. Instead of closing with descending tones, they frequently come to their finale in those which ascend. Thus they assume an abruptness to which we find it difficult to accommodate ourselves, and seem as if we were expecting some additional notes to complete the sound.

As far as variety is a source of delight, the Third Lecture on National and Scientific Music, delivered by Dr. Crotch at this Institution on Tuesday, possessed peculiar attraction. The object of the Professor was not so much to instruct by general or abstract statement, as to exemplify the Science by select Recitations, displaying its force and influence on the mind. Diversified as the taste of far-removed nations may naturally be found, yet harmony being the professed point sought for, is known to exist, though in very differently modified tones and strains. Nor is it a little remarkable, that amongst people between whom scarcely any connexion whatever has been maintained, and certainly none at all for this purpose, a uniformity in the grand principles of Melody may be traced. The present Lecture afforded us abundant opportunity of forming our judgment on this subject, and of authorizing the observations we have made upon it. Dr. Crotch professed to bring under consideration Musical Science as it was anciently, and at present is practised amongst twenty-three different nations and people—English, French, Italian, Swiss, German, Spanish, Portuguese, Moorish, Hungarian, Polish, Scandinavian, Norwegian, Danish, Russian, Sclavonian, Turkish, Arabian, Persian, East Indian, Chinese, Javanese, Otaheitean, and North American.

Under the head of *English* Music several fine specimens were performed, particularly that called *The Carman's Whistle*, a melody of the 16th century, found in a collection made under the auspices of Queen Elizabeth. The variations contained in it are rather difficult, but it is one of the best productions of that age; *The Dance Tune*, which is found in a work by John Stafford Smith; *The Light of Love*, a melody simple in its construction, but skilfully varied; *The Beggar Boy*, a most elegant air, and remarkable for its peculiar cadences; *The Shepherd's Daughter*, a pleasing and easy melody. In these and other performances, the light and airy, the slow and solemn, the grand and powerful, the pathetic and touching styles, were made familiar to our minds; and perhaps from national prepossession and general early association of feeling, induced the opinion of great excellence and merit.

The next selection in the course was from the *French* musical composers. In this a distinguished place was given to *The Song of Roland*, which is said to have been used at the battle of Hastings by the whole army. The modulation is very unusual. The *Roman d'Alex-*

andre, composed in the former part of the 15th century. *A Song by the Queen of Navarre*, which has much of the present style of French music. It is pervaded by a sort of martial uniformity. *La Bonnet* possessed considerable interest. Though lively and cheerful, the general strain of French harmony does not embody that fulness and grandeur which is so sensibly perceived in the music of some other nations.

The *Italian* airs were sweet and simple.

The *Swiss* possess a war-song, which has produced amongst their soldiery, in former times, such enthusiastic emotions, as to be prohibited upon pain of death, lest, under any unfavourable circumstances, the abuse to which it was liable might be injurious to the state.

The *German* tunes are of ambiguous measure.

The *Spanish Fandango* contains almost innumerable variations, accommodated to the changes of the dance. The *Boleras* is an air adapted to the guitar.

The *Portuguese Saraband* is a fine air.

Of *Polish* music a lengthened specimen, which was particularly excellent, was given. It was at once lively, full, and melodious.

The *Scandinavian* music, founded on the poetry of Odin, appeared rather monotonous, as it included but four notes, the variations of which necessarily confined it in a very narrow compass.

The *Norwegian* music is peculiarly calculated for the harp. Two agreeable airs were given. One used by the peasants when they leave their houses and cabins to pasture their cattle; and the other, when they return to their winter quarters.

The *Russian* music is diversified in its style, but greatly assimilated to the Norwegian.

A *Turkish* March was performed, which was originally transmitted to us by the Marquis of Lothian. It was fine and striking.

The *East Indian* music partakes something of the natural feebleness of the natives, though in some instances soothing and agreeable.

The *Chinese* and *Japanese* strongly resemble each other in their musical strains. One belonging to the former people, preserved by Du Halde, was recited. The boatmen have one in common use as they row on the water, congenial to their peculiar temper and habits.

Of *Otaheitean* music three specimens exist in the Museum at Oxford.

The *North American* airs were peculiarly pleasing. One sung by the young Canadians upon coming of age, expressive of gratitude to their parents for their care and affection, was given with good effect.

This Lecture terminated the discussion and exhibition of National Music.

Whatever motives might induce Plato to banish Music from his republic, we believe now a very different view of the subject has obtained; and that as it expands, elevates, and enlivens the mind, it ought to receive universal patronage. In our youth it animates; in maturer years it soothes and consoles; and even in age, except the finer feelings of nature are deadened and extinguished, it yields complacency and satisfaction. And though last, yet not least is the consideration, (says the enthusiast) it only ante-dates the perpetual harmony of the Celestial Spheres.

FROM THE BRITISH REVIEW.

THEORY AND PRACTICE OF GUNNERY.

1. *Tracts on Mathematical and Philosophical Subjects: comprising among numerous important Articles, the Theory of Bridges, with several Plans of recent Improvement. Also, the Results of numerous Experiments on the Force of Gunpowder, with Applications to the modern Practice of Artillery.* By Charles Hutton, LLD. and FRS. &c. Late Professor of Mathematics in the Royal Military Academy, Woolwich. 3 vols. 8vo. Rivingtons, &c. London, 1812.
2. *Observations on the Motives, Errors, and Tendencies of M. Carnot's Principles of Defence; showing the Defects of his new System of Fortification, and of the Alterations he has proposed with a view to improve the Defences of existing Places.* By Colonel Sir Howard Douglas, Bart. KSC. CB. FRS. Inspector General of the Royal Military College. 8vo. Egerton. London, 1819.
3. *A Treatise on Naval Gunnery. Published with the Approbation and Permission of the Lords Commissioners of the Admiralty.* By Colonel Sir Howard Douglas, Bart. &c. 8vo. Murray. London, 1820.
4. *Resultats de quelques Expériences faites à Woolwich avec un Pendule ballistique pesant plus de 3333 Kilogrammes.* Annales de Chimie et de Physique. Tome 5, 1817.
5. *Expériences relatives à l'Influence du Vent sur la Vitesse des Projectiles et la Justesse du Tir.* Annales de Chimie, &c. Tome 9, 1818.
6. *Mémoire sur l'Effet des Feux Verticaux proposes par M. Carnot, dans la Défense des Places fortes.* Par M. Augoyat, Capitaine au Corps Royal du Génie. 4to. Paris, 1821.

If the dissertations and treatises whose titles are placed above, related exclusively to the art of war, we should not, probably, have chosen to give an account of them in a season of profound peace. But the subject of military projectiles presents numerous topics of inquiry, as interesting to the philosopher as to the hero; and which are calculated as fully to call into exercise the investigative powers of the former in the closet, as they are to exhibit the active energies of the latter in the field.

Ever since Galileo laid the foundation of dynamics, gunnery has had a place amongst the mathematical sciences. Indeed that extraordinary man, in the fourth of his Dialogues on Motion, published in 1646, demonstrated that a cannon-ball, or any other projectile, would describe in its flight the curve of a parabola, except so far as the resistance of the air should cause a deviation from that track. He also proposed the means of examining the irregularities produced by that resistance; but he formed a very inadequate estimate of their extent and magnitude.

Robert Anderson, in his Genuine Use and Effects of the Gunne, published in 1674, as well as in his rules To hit a Mark, published in 1690, adopts the theory of Galileo, and courageously proposes to answer all possible objections. Blondel, also, in his Art de jetter les

Bombes, unhesitatingly adopts the theory of the learned Florentine, and denies the necessity of modification.

Soon, however, the more extensive application of mathematics to inquiries in natural philosophy rendered it impossible to acquiesce in these erroneous results. Thus Huyghens showed that if the resistance of the air were proportional to the velocity of the moving body, the line described would be a kind of logarithmic curve. Shortly afterwards Newton demonstrated, in his Principia, that under certain restrictions the resistance of the air is nearly as the square of the velocity of the body moving in it; and upon this hypothesis he made some very elegant approximations to the nature of the curve described by the projectile. John Bernoulli, Herman, and Brook Taylor, entered eagerly upon the same inquiry, and made some advances. And Daniel Bernoulli, in Comment. Acad. Petrop. tom. 2, concludes, from experiment, that a ball which ascended only 7819 feet in the air, would have ascended 58750 feet in vacuo! thus proving, to the astonishment of many, the enormous resistance opposed by the air to rapid motions.

But our learned countryman, Robins, seems to have been the first who entered upon this subject with a systematic determination to avail himself of the joint aid of analytical theory and of cautious and extensive practice, and to proceed methodically through the whole range of useful inquiry. In his New Principles of Gunnery, published in 1742, he first investigates the explosive force of the gunpowder, and then the velocity acquired by the ball in consequence of the action of the inflamed gunpowder upon it. He proved, by indisputable experiments, that the force of inflamed powder arises from a subtile elastic matter contained in the powder, which by the ignition is set at liberty to expand itself. He then attempts to investigate the quantity of that force, and by what law it diminishes as this elastic fluid dilates itself; as well as to what extent the expansive energy is increased or modified by heat. Thus much premised, he proceeds to investigate the velocity of a ball projected from a given tube with a given quantity of gunpowder. In order to confirm the truth of his conclusions, he contrived a machine, the Ballistic Pendulum (of which we shall say more in the sequel) by means of which the actual velocity of the ball might be ascertained: and he found a remarkable agreement between his theoretical deductions and the results of experiment. He next inquires into the resistance of the air, and proves that the law of resistance to very swift motions is considerably greater than had been imagined by previous investigators. He shows how much any ball, projected with a given velocity, will gradually lose of that velocity in consequence of the resistance of the medium; and constantly fortifies his determinations by experiments with the Ballistic Pendulum.

Mr. Robins does not investigate the nature of the curve described by a projectile in a resisting medium. That labour, however, has been since attempted by Euler, Robison, Legendre, and with great elegance by Poisson in his Mechanics; but the results they furnish are not sufficiently practical to be of much utility, whatever may be their ingenuity as efforts of analytical skill.

Euler translated Robins's work into the German language, and enriched it with a very elaborate commentary and notes. These again were transplanted into the English soil by Mr. Hugh Brown, in 1777; and rendered still more valuable by several additions furnished by Landen,

an analyst of extraordinary talents and genius, whose profound investigations on a variety of physical subjects deserve much more careful examination and much warmer praise than they have ever yet received. Robins's Principles, with these successive augmentations, are, indeed, highly interesting and instructive to mathematicians, serving incidentally to illustrate many points in the transcendental branches of science. But the practical bearings of the several steps in the inquiry were by no means so constantly kept in mind as could be wished; so that there remained ample room for the exertions of a new traveller in this path of investigation.

Shortly before the appearance of Brown's translation of Euler's Robins, Dr. Hutton had been appointed to the Mathematical Professorship, in the Royal Military Academy at Woolwich. In him were united very extensive mathematical acquirements, remarkable calmness and patience as an investigator, and an earnest desire to direct his talents to some subject of great and obvious utility in the public station he then occupied. Thus qualified and thus stimulated to exertion, he commenced in 1775 (having removed from Newcastle to Woolwich in 1773) a course of experiments on fired gunpowder and the velocities of cannon-balls. Discarding from his consideration what was obviously referable to the researches of the chemist, he still found ample scope for the most enlarged inquiry; and soon distributed his topics under the following general heads:—

1. The velocities with which balls are projected by equal charges of powder from pieces of the same weight and calibre, but of different lengths.
2. The velocities with different charges of powder, the weight and length of the gun being the same.
3. The greatest velocities due to the different lengths of gun; or to be obtained by increasing the charge so far as the cohesive force of the piece will allow.
4. The effect of varying the weight of the piece, every thing else remaining the same.
5. The penetration of balls into blocks of wood, when fired with certain velocities.
6. The velocities of balls at different distances from the muzzle of the piece, serving to determine the resistance of the medium; compared, also, with other methods of determining the air's resistance.
7. The effects of wads; of different degrees of ramming, or of compression given to the charge; of different positions of the vent; of different degrees of windage, &c.
8. The ranges and times of flight; the determinal velocity, and its use in approximating to the ranges in real practice.

In the determination of these particulars, the Doctor availed himself, jointly, of cautious experiment, and of the most judicious (sometimes refined) theoretical investigations. After pursuing his inquiry with extraordinary perseverance for many years, he has laid the result of the whole before the public in the second and third volumes of his Tracts, whose title stands at the head of this article.

It is not our intention to follow him step by step, over the entire region which he has so elaborately explored: but simply to select a few of the more interesting points, and especially those which are further elucidated by the subsequent experiments and researches recorded in the other publications which now lie before us.

An object of essential importance in these inquiries, is the velocity with which a military projectile actually moves. This velocity being very great, that is, from 6 or 700 to 1500 or even 2000 feet in a second of time; its convenient estimation seems naturally to invole some reduction. To accomplish this, Mr. Robins invented the Ballistic Pendulum. It consists of a large block of wood, annexed to the end of an iron stem, strongly framed, and capable of oscillating freely upon a horizontal axis. This machine being at rest, a piece of ordnance is pointed directly towards the face of the block, at any assigned distance, as 20, 30, 40, 60, &c. feet, and then fired: the ball discharged from the gun strikes and enters the block, communicating to it a velocity, which is to the velocity with which the ball was moving at the moment of impact, as the weight of the ball to the sum of the weights of ball and pendulum. Referring this velocity to the centre of oscillation of the pendulum, it will rise through an appreciable arc of vibration till such velocity is extinguished. The measure of that arc will lead to the determination of the velocity, because it is evidently equal to the velocity which a body would acquire by falling freely through the versed sine of the arc shown by the experiment.

Mr. Robins's largest ballistic pendulum weighed only 97 pounds; being employed to ascertain the velocities of balls weighing about an ounce each. The smallest pendulum constructed by Dr. Hutton, weighed 600 pounds: and, as he pursued his experiments, the new pendulums were made successively larger and larger, till they reached the weight of about 2600 lbs. He also made several improvements in their construction, especially in the manner of suspension, and in that of measuring the semi-arc of vibration; employing this curious apparatus in ascertaining the velocities of balls varying in weight from one pound to six, and propelled with nearly all possible modifications of charge. It appears, farther, from Annales de Chimie et de Physique, tome 5, that in recent experiments at Woolwich, conducted by Dr. Gregory and the Select Committee of Artillery Officers, a ballistic pendulum, weighing 7400 pounds, was employed in determining the velocities of 6, 12, 18, and even 24 lb. balls.

What is here said will suffice to explain the general construction of this elegant apparatus. For more particular descriptions, exhibiting the minutiæ of the successive improvements, the inquisitive reader may consult Robins's New Principles of Gunnery; Hutton's Tracts, vol. ii. p. 313, &c.; Sir Howard Douglas's Naval Gunnery, p. 38; and M. Dupin's late work on the Military Force of Britain; in which latter work are exhibited accurate representations of the ballistic pendulum now used at Woolwich, as well as of the ingenious Eprouvette invented by Dr. Hutton, and described in the third volume of his Tracts.

It is time we should present a few of Dr. Hutton's deductions, which we shall lay before the reader in the Doctor's own words:

"1st, It is made evident by these experiments, that gunpowder fires almost instantaneously. 2dly, The velocities communicated to shot of the same weight, with different charges of powder, are nearly as the square roots of those charges. 3dly, And when shot of different weights are fired with the same charge of powder, the velocities communicated to them are nearly in the inverse ratio of the square roots of their weights. 4thly, So that, in general, shot which are of different weights, and impelled by the firing of different charges of powder, acquire

velocities which are directly as the square roots of the charges of powder, and inversely as the square roots of the weights of the shot. 5thly, It would therefore be a great improvement in artillery, occasionally to make use of shot of a long shape, or of heavier matter, as lead; for thus the momentum of a shot, when discharged with the same charge of powder, would be increased in the ratio of the square root of the weight of the shot; which would both augment proportionally the force of the blow with which it would strike, and the extent of the range to which it would go. 6thly, It would also be an improvement, to diminish the windage;* since by this means, one-third or more of the quantity of powder might be saved. 7thly, When the improvements mentioned in the last two articles are considered as both taking place, it appears that about half the quantity of powder might be saved. But, important as this saving may be, it appears to be still exceeded by that of the guns: for thus a small gun may be made to have the effect and execution of another of two or three times its size in the present way, by discharging a long shot of two or three times the weight of its usual ball, or round shot; and thus a small ship might employ shot as heavy as those of the largest now used."

Such were the conclusions from Dr. Hutton's first course of experiments in 1775: from a more extensive series, which did not terminate till the year 1787, the following were the general results.

"From a general inspection of this second course of these experiments, it appears that all the deductions and observations made on the former course, are here corroborated and strengthened, respecting the velocities and weights of the balls, and charges of powder, &c. It further appears also that the velocity of the ball increases with the increase of charge only to a certain point, which is peculiar to each gun, where it is greatest; and that by further increasing the charge, the velocity gradually diminishes, till the bore is quite full of powder. That this charge for the greatest velocity is greater as the gun is longer, but yet not greater in so high a proportion as the length of the gun is; so that the part of the bore filled with powder, bears a less proportion to the whole bore in the long guns, than it does in the shorter ones; the part which is filled being indeed nearly in the inverse ratio of the square root of the empty part.

"It appears that the velocity, with equal charges, always increases as the gun is longer; though the increase in velocity is but very small in comparison to the increase in length; the velocities being in a ratio somewhat less than that of the square roots of the length of the bore, but greater than that of the cube roots of the same, and is indeed nearly in the middle ratio between the two.

"It appears, from the table of ranges, that the range increases in a much lower ratio than the velocity, the gun and elevation being the same. And when this is compared with the proportion of the velocity and length of gun in the last paragraph, it is evident that we gain extremely little in the range by a great increase in the length of the gun, with the same charge of powder. In fact the range is nearly as the 5th root of the length of the bore; which is so small an increase, as to amount only to about a seventh part more range for a double length of gun.—From the same table it also appears, that the time of the ball's flight is nearly as the range; the gun and elevation being the same.

"It has been found, by these experiments, that no difference is caused in the velocity, or range, by varying the weight of the gun, nor by the use of wads, nor by the different degrees of ramming, nor by firing the charge of powder in different parts of it. But that a very great difference in the velocity arises from a small degree in the windage: indeed with the usual established windage only, viz. about $\frac{1}{76}$ of the calibre, no less than between $\frac{1}{3}$ and $\frac{1}{4}$ of the powder escapes and is lost: and as the balls are often smaller than the regulated size, it frequently happens that half the powder is lost by unnecessary windage."

It is not a little remarkable that notwithstanding the decisive manner in which Dr. Hutton recommends the diminution of windage, it should not have been adopted in practice till very lately; and that in

* By the technical word *windage* is meant the difference between the diameter of a ball, and the interior diameter of the gun from which it is fired.—Rev.

consequence principally of the representations of Sir Howard Douglas; who, having been, as we are informed, a student at the Royal Military Academy, seems now to find an exalted pleasure in becoming the practical and experienced commentator upon the valuable labours of his former preceptor. In part the second of his Naval Gunnery, he points out the extraordinary anomalies in the previously received system of windage, and expatiates with great good sense upon their prejudicial effects. He satisfactorily refutes the popular objections to any change, and then proceeds thus—

"The preceding remarks on windage having been brought under the consideration of the Master General of the Ordnance in 1817, his lordship referred the paper to the consideration of a select committee of artillery officers, who stated in their report 'that they were very desirous that experiments should be made with a view to ascertain to what extent the benefits which I had anticipated could be realized.' The committee, therefore, proposed to the Master General, to be permitted to make a course of experiments on this subject, commencing with field-artillery, and for that purpose recommended that a proportion of shot of various increased magnitudes should be provided. These measures having been approved, a course of experiments was instituted accordingly, 'founded upon the suggestions communicated by me.'

"Having first adopted an opinion, asserted in my observations, articles 49, 53, that the present mode of apportioning a part of the calibre is not so distinct and advantageous, as a fixed quantum expressed in parts of inches for all natures [of ordnance], the committee proceeded to determine what that quantum should be.

"After repeated trials with a 6 pounder, a 9 pounder, and a 12 pounder, at 300, 600, and 1200 yards, it was proved, 'that with charges of powder $\frac{1}{6}$ less than usual, the larger shot, and smaller windage, produced rather the longest range.' 'Recourse was also had to the ballistic pendulum, to discover the proportional excess of momentum of the larger balls over the smaller; and the result, after a very satisfactory course of experiments, assisted by the scientific research and well known mathematical abilities of Dr. Gregory of the Royal Military Academy, corroborated the trials by ranges, leaving no doubt of their accuracy.'

"In consequence of these trials the committee fixed the quantity of windage for field-guns at one-tenth of an inch; the same which I had suggested.

"Now it is clear that this improvement may either be applied to save $\frac{1}{6}$ part of the quantity of powder provided for field service, without diminishing the power of range, and consequently to economize, without detriment, the means of transport for ammunition; or the alteration may be applied to produce longer ranges, if this be preferred to the economical consideration. This preference has very properly been given, and the established charges adhered to accordingly.

"A great collateral advantage has followed from this correction of windage. It was at first apprehended that the increased effects arising from the additional weight of shot and diminished windage would injure brass guns; but it is quite the reverse. With the reduced quantum of windage guns are much less injured, and will last much longer than formerly; and this has been so well ascertained, that, in consequence of this correction, it is now proposed to abandon the wooden bottoms to which shot were fixed for the purpose of saving the cylinder, substituting for them the paper cap taken off the end of the cartridge. This being put over the ball is quite sufficient to keep it from rolling or shifting, whilst, by supporting or fixing it thus, the centre of the ball coincides with the axis of the cylinder, and the space for windage is reduced to a complete annulus, which admits of the percussion from the charge being equally received, and which prevents, or very much reduces that injury or indentation which the cylinder receives when the ball touches it on the lower part only."—(Naval Gunnery, p. 82.)

An abridged account of the experiments with the ballistic pendulum, to which Sir Howard Douglas refers, is given in Annales de Chimie et de Physique, tome ix. p. 289, &c. We shall transcribe the results of one day, May 19th, 1818.

"The day was dry, but cloudy; the thermometer stood at 13·3° centigrade (56°

Fahr.), the barometer at 29·9 inches. The pendulum weighed 7008 pounds avoirdupois. The gun was a 12-pounder, its weight 2025 pounds; its length 74·25 English inches; its calibre 4.62 inches.

Number of the Exper.	Weight of the Ball.			Diameter of the Ball.	Windage.	Charge of Powder.			Velocities obtained.
	lbs.	oz.	drs.	inches.	inch.	lbs.	oz.	drs.	feet.
1	12	12	0	4·545	0·075	3	5	6	1548
2	12	12	7	4·54	0·080	3	5	6	1537
3	12	11	0	4·545	0·075	3	5	6	1588
4	12	10	1	4·54	0·080	3	5	6	1507
5	11	11	8	4·42	0·200	4	0	0	1572
6	11	10	4	4·418	0·202	4	0	0	1537
7	11	12	1	4·418	0·202	4	0	0	1563
8	11	12	1	4·418	0·202	4	0	0	1529

Here it is evident that the velocity corresponding to a windage of ·075, or $\frac{3}{40}$ of an inch, is at a mean 1568 feet, rather exceeding 1550 feet, obtained when the windage was ·20, or $\frac{8}{40}$; though in the former case the charge was less by $\frac{1}{6}$ part than the latter.

Assuming the correctness of the results, as tabulated above, we are by no means inclined to agree with Sir Howard Douglas in recommending an adherence to the established charges, *viz.* of a third of the weight of the ball, after the new rate of windage is completely adopted. Supposing that, *cæteris paribus*, the initial velocity varies as the square root of the charge, a 4-pound charge with the new windage would propel a 12-pound ball with an initial velocity of about 1720 feet, a velocity which would be very effective indeed if the ball were moving through a non-resisting medium, but which experiences a most rapid retardation as the projectile passes through the air. The experiments of Dr. Hutton prove, not only that the resistance of the air becomes very enormous when the velocities exceed 1300 feet, but that the law of the resistance no longer accords nearly with the *square* of the velocity, but, to be correctly exhibited, requires a higher exponent. The reason is very evident. Atmospheric air rushes into a vacuum with a velocity of about 1346 feet per second, and it, manifestly, cannot make way for a ball moving with a greater velocity than this without being condensed before it. In such cases, the air thus condensed in front of the ball, opposes its motion not only by a simple resistance, but by a force of elasticity proportional to the compression, and therefore rapidly increasing as the velocity of the projectile exceeds 1346 feet. This repulsion soon reduces the higher velocities of 16 or 1700 feet to the limit of from 1350 to 1400, and consequently renders them of scarcely any use in either increasing the horizontal range, or the effective impetus of the ball, except at comparatively small distances from the mouth of the piece. This accords with the experience of our artillery officers when employed in Spain: they found that balls fired with velocities of 1600 feet had scarcely any advantage over those propelled with velocities of 1400 in the destruction of distant objects.

Theorists have long known that the elastic force exerted by the air against *small* bodies moving with considerable velocities, may become

so great in proportion to the weight, as not merely to destroy the motion communicated, but even to repel the bodies: and this, indeed, is frequently experienced when small shot are thrown from a musquet by large charges of powder, the shot being driven back in the contrary direction to that in which they were propelled. The same thing, of course, does not precisely happen in the practice of artillery; but it is a fact strictly coincident with theory, that a smaller charge of powder, by giving the shot less initial velocity, will cause it to fly further than a greater charge, which would propel the ball with a velocity that exceeds a certain limit.

Before we entirely quit the subject of the experiments in reference to windage, we beg to call the reader's attention to a curious fact observed in the course of them.

"On a déjà fait remarquer, en rendant compte des expériences de 1817 (voyez Annales de Phys. et de Chim. tome v. p. 386), que le circonférence de l'ouverture fait par le boulet dans la plaque mince de plomb clouée sur la face antérieure du pendule, présentait toujours *une apparence de fusion*.

"Durent les nouvelles expériences, le Colonel Griffiths, le Dr. Grégory, et plusieurs autres personnes, ont en outre remarqué qu'au moment précis où le boulet frappait le pendule, il sortait *une vive lumière* de l'ouverture circulaire par laquelle ce projectile était entré. Cet effet avait également lieu, soit que la face choquée fût recouverte d'une feuille de plomb, de toile, ou de papier. L'ouverture faite par un premier boulet dans le pendule ayant été bouchée avec du bois, on plaça tout à côté, une once de poudre qui prit feu lorsqu'un second boulet atteignit l'appareil: la flamme provenant de l'explosion de la poudre succédait immédiatement à la lumière que le choc du projectile développait. Ces effets distincts furent observés trois fois dans un même jour (le 20 Mai, 1818).

"La lumière qui met ainsi le feu à la poudre provient-elle du frottement du projectile sur la substance qu'il traverse, ou de la brusque compression de l'air atmosphérique sur la face du pendule? Ces deux causes ne contribuent-elles pas l'une et l'autre à l'effet observé? Lorsqu'on décharge un fusil à vent, on aperçoit de la lumière, comme tout le monde sait, à la bouche du canon: n'est il pas permis d'en conclure que si l'on tire un canon pendant la nuit, le boulet marquera sa course dans l'atmosphère par une trainée de lumière?" (Annales de Chim. tome ix. p. 292.)

We are not aware that the experiment suggested in the last interrogatory has ever yet been tried.

A military officer of some eminence, but, as we should conjecture, sadly defective in mathematical knowledge, has recently proposed the use of short guns, especially in the service of the navy, strangely fancying that the loss of velocity and range that would attend the shortening of the gun would be more than compensated by some suggested peculiarities in the external configuration of the piece. This is utterly repugnant to correct theory, and we believe to correct practice also. The question was put to the test in the Woolwich experiments of 1817, and the result was uniformly and decidedly against the short guns. That additions to the length of the piece should occasion increased velocity of projection, is obviously the joint effect of two causes. 1st. The expansive force of the inflamed gunpowder acts longer upon the ball in a long than in a short gun, and therefore communicates a greater velocity. 2dly. In short guns no small portion of the gunpowder is carried out of the muzzle without being at all inflamed. The lengths, however, must be limited by practical considerations, as well as by the theoretical ones deducible from our quotation a few pages back from Dr. Hutton.

Sir Howard Douglas, who has the happy faculty of confirming his theoretical positions by reference to historical facts, adduces some with a view to this question which we make no apology for citing.

"Viewing the matter purely as an artillery question, there is no doubt that preference should be given to long guns. As to its application to naval matters, I do not hesitate to recommend, that a frigate which cannot carry 8 feet 24-pounders, had better be fitted with long 18-pounders, than with 6 or 6½ feet 24's, or with any nature of carronade, exclusively.

"The very mortifying situation in which the gallant Sir James Yeo found himself in September, 1813, on Lake Ontario, shows the danger of the carronade system of armament. Sir James states, in his letter of the 12th of September, 'the enemy's fleet of eleven sail, having a partial wind, succeeded in getting within range of their *long 24 and 32-pounders;* and, having obtained the wind of us, I found it impossible to bring them to close action. *We remained in this mortifying situation five hours*, having only *six guns in the fleet that would reach the enemy.* Not *a carronade was fired.* At sunset a breeze sprang up from the westward, when I manœuvred to oblige the enemy to meet us on equal terms. This, however, he carefully avoided.'

"Captain Barclay states, in his letter of the 12th of September, 1813:—'The other brig of the enemy, apparently destined to engage the Queen Charlotte, supported in like manner by two schooners, kept so far to windward as to render the Queen Charlotte's 24-pounder carronades useless, whilst she and the Lady Prevost were exposed to a heavy and destructive fire from the Caledonian and four other schooners, armed with *long and heavy guns.*'"

Sir Howard next describes the action of the Phœbe with the American frigate Essex, as confirming the theoretical view of the business; and adds,

"This brilliant affair, together with the preceding facts, cannot fail to dictate the necessity of abandoning a principle of armament exposed to such perils, and to teach the importance of adapting the tactics of an operation to the comparative natures and powers of arms." (Naval Gunnery, p. 116.)

These extracts will serve to show that this scientific and able officer does not satisfy himself with presenting the rules of his profession dry and naked, but that he teaches his readers how to avail themselves of the most striking warnings, or the most cogent encouragements, fresh as they are exhibited in the naval and military records of our country.

In reference to the resistance of the air, it is too remarkable to be omitted, in any view of the general subject, however cursory, that as on the one hand no complete theory of projectiles can ever be exhibited independently of the law and magnitude of the resistance, so, on the other, adequate experiments on balls thrown from artillery supply us with very valuable approximations to the actual measure of the resistance in the utmost variety of cases. Very careful experiments on the resistances of fluids to bodies moving in them have been made by D'Alembert, Borda, Vince, and others; but Dr. Hutton is the first, nay the only person, so far as we are aware, who has deduced one regular connected law from two independent classes of experiments. For all the lower velocities he employed the whirling apparatus described by Robins, and made by Ellicot; while, for all the higher velocities, from about 300 or 400 feet per second, up to 2000, he most ingeniously availed himself of the ballistic pendulum, by throwing balls into which, at different distances from the muzzle of the piece, and computing the several velocities, he inferred both the law of the resistance and the numeral value of the co-efficients. Taking the case

of balls, the following theorem, so expressed as to facilitate computation, comprises the accordant results of the two independent series of experiments:

$$\text{viz. } r = \frac{d^2}{1000}\left(\frac{S\frac{1}{10}v^2}{400} - \frac{7}{4}v\right)$$

where r denotes the resistance in avoirdupois pounds in a medium state of the atmosphere, d the diameter of the ball in inches, v its velocity in feet. Such of our readers as have not paid some attention to this class of inquiries, will be surprised on reading that a 36 lb. cannon-ball, moving with a velocity of 1600 feet per second, would experience a resistance of 418 lbs., independently of the elastic pressure on the anterior part of the ball, which would be equal to 487 lbs. more; in all, more than 900 lbs.! We most cordially recommend to all students in natural philosophy those portions of Dr. Hutton's Tracts which relate to resistances, as presenting some of the most perspicuous and instructive specimens of physical induction which we have ever seen.

The doctrine of *terminal velocities* grows out of that of resistances, and is as curious as it is important. To obtain a distinct view of this, let the following question be considered. Suppose a ball to be projected vertically upwards with a great velocity, say 1200 feet in a second, will it occupy most time in its ascent or in its descent? If the body be projected in vacuo, or in a non-resisting medium, the times occupied in the ascent and in the descent will be equal; not so, in the actual case of motion in the atmosphere. The ball, so soon as its ascending velocity is extinguished by the joint operation of the force of gravity and the resistance of the air, will begin to fall, and will continue to descend, and for an interval to increase in velocity; *yet, it will never acquire the velocity with which it was projected upwards:* for the velocity downwards can only increase until the relative weight that urges it in its descent is just balanced by the resistance of the air; after which, there being no further cause of acceleration, the ball will continue to descend uniformly. The greatest velocity which a globe can thus acquire by descending in the atmosphere is called its *terminal velocity;* and it is found by making the analytical expression for the air's resistance equal to that for the relative gravity of the ball. Putting $g = 32\frac{1}{6}$ feet, d the diameter of the ball, Δ and δ for the densities of the ball and air respectively, we have for the terminal velocity,

$$v = \sqrt{\left(2g.\frac{4}{3}d.\frac{\Delta - \delta}{\delta}\right)}$$

Computations founded either upon this theorem, or upon actual experiments, give, when the barometer stands at 29.9 inches, for the terminal velocity of a 1 lb. ball, 247 feet—of a 4 lb. ball, 311 feet—of a 9 lb. ball, 356 feet—of an 18 lb. ball, 400 feet—of a 36 lb. ball, 450 feet—of a 13 inch shell, 534 feet. The greatest of these terminal velocities falls very far short of the original velocity of projection in the proposed case; whence it is manifest that the time of descent would far exceed the time of ascent.

It is sufficiently interesting to remark that, according to the same theory, the utmost velocity which a hailstone of a quarter of an inch

in diameter *can* acquire in its descent, unless it be driven by the wind, is only 32¼ feet; and that, in like manner, the *maximum* descending velocity of a spherical hailstone, an inch in diameter, is but 64½ feet. How wisely and mercifully ordered!

The knowledge of the terminal velocities of balls and shells of different sizes, enables the artillerist, by a course of reasoning which, looking back upon the space we have already occupied, we must not now attempt to develope, to approximate to the ranges, in all the most useful cases, as well as to determine the elevation which shall give the maximum range; and which, by the way, we may observe is always *less* than the usual theory of projectiles in vacuo assigns. The annexed theorem, which comprehends the whole of Dr. Hutton's useful table, vol. iii. p. 270, is sufficiently accurate for all practical purposes.

$$\left.\begin{matrix}\text{Elevation for}\\ \text{max. range}\end{matrix}\right\} = 43° - \left(\frac{\text{init. vel.}}{\text{term. vel.}} - 1\right)3°.$$

The celebrated Carnot, in his work on the Defence of Fortified Places (a work written, as several of our readers may recollect, to please his imperial master by demonstrating the impossibility of conquering France!) recommends that the besieged should begin to employ what he denominates *vertical fire*, upon the commencement of the construction of the third parallel, and from that period of the siege keep up an incessant discharge of musquetry, and of 4 oz. iron balls, at great elevations, upon the enemy's works, so as to form a shower of shot (*pluie de balles*) upon the trenches. He proposes that the iron balls should be discharged from a number of 12-inch mortars, two of which were to be placed in the salients of each bastion and ravelin, in the front or fronts attacked, each mortar throwing 600 balls at each discharge. M. Carnot imagined that one out of each parcel of 180 balls so thrown, would hit a man, and he concluded that it would inevitably place him "*hors de combat*."

At first glance this appears a very formidable mode of defence. But, on reasoning upon the doctrine of probabilities, it will appear that M. Carnot has estimated the number of effective balls much too highly. But it is more consonant with the tenor of this article to observe, that he altogether overlooked an essential consideration in the principles of projectile motion, and that no Frenchman of science saw the mistake, or at least attempted to point it out, till after it had been exhibited to public view in the animadversions of an English officer, six years subsequent to the publication of M. Carnot's treatise.

Sir Howard Douglas's refutation is very complete; extending, indeed, to other matters besides Carnot's blunder in reference to the vertical fire. Our quotations, however, must relate to that subject alone.

"When (says Sir Howard) I began to consider this interesting problem, as applied to vertical fire, I was soon satisfied that M. Carnot had *entirely overlooked terminal velocity*; and I shall show, from his own words, that this is the case."

This point he confirms; and, after computing the terminal velocity of a French 4 oz. ball, (viz. 201 feet,) he shows that a ball falling with such a velocity would not penetrate more than about one-tenth of an inch into elm timber. He then proceeds:

"Four ounce balls, discharged at elevations even considerably above 45°, to the distance of 120 yards, would not inflict a mortal wound, excepting upon an uncovered head. They would not have force sufficient to break any principal bone; there would be no penetration, but merely a contusion."

In a note Sir Howard details some experiments in confirmation of these assertions:

"A cohëorn mortar was placed 100 yards from six new deal targets laid on the ground, and two new wadmill tilts spread out near them, to estimate by the impression made on them the force with which the balls would fall.

"The first round was with the usual tin case, containing 33 four ounce balls, with a charge of one ounce of powder, elevation 45°. The case went bodily about 130 yards without breaking.

"Loose balls where then put in over a wooden bottom. After a number of rounds with the above charge and elevation, with different numbers of four-ounce balls, it was ascertained that the cohëorn would throw 42 of them 100 yards, and that the spread was, on an average, about 10 or 12 yards. It was not very easy to hit the targets and cloths, *although they covered a surface of 774 square feet*; but, in one instance, 22 balls left their mark. The indentation on the surface of the deal was so small that it could not well be measured; it certainly was not more than one-twentieth of an inch deep. *A ball thrown with force from the hand appeared to make an equal impression.* Those which struck the wadmill tilt did not penetrate, but merely indented the ground underneath. The penetration of the balls into the ground (which was of the softest nature of meadow) was, on an average, two inches; but the balls thrown by hand did not penetrate so far.

"The mortar was then elevated to 75°, and with 2 oz. of powder and 42 balls made nearly the same range as before; but the spread was increased to about 40 yards, so that it was very difficult to hit the surface aimed at. Several balls did, however, at length, fall on the targets and wadmill tilts. The impression on the former was something increased, but still so trifling as hardly to be measured; *the balls did not go through the cloth*, and the penetration on the meadow was only increased to about three inches." (Douglas's Observations, p. 23.)

This is very decisive; and much more of what is advanced by this scientific and indefatigable officer is equally satisfactory. We have been recently informed that experiments now carrying on by "the Select Committee," will furnish a complete and practical refutation of all that M. Carnot advanced on this his new mode of defence.

M. Augoyat's memoir on the effect of vertical fires contains brief accounts of experiments made in France, at Corfu, and in Russia; all tending to show the inefficacy of M. Carnot's mode of defence. This author also quotes freely from Sir Howard Douglas, avowedly, however, and with the commendation due to his talents and activity. The memoir is followed by two notes, in one of which the author reduces to French measures some elegant approximative formulæ to the actual ranges of military projectiles, first given by Dr. Hutton in the 3d vol. of his Tracts: the other note contains some obvious, but not uninteresting remarks on the nature and efficacy of ricochet-firing. For these we must now refer to the pamphlet itself, having nearly exhausted the space which can adequately be assigned to the present article.

We by no means present this as a complete history of the successive steps by which the theory and practice of gunnery have been improved; but have rather made it our object to select a few of the more leading and prominent points, expatiating most where there has been an obvious connexion between the matter of investigation and some interesting department of physical inquiry. By pursuing this course we hope to have rendered an acceptable service both to military men, and to the younger votaries of genuine philosophy.

FROM THE MONTHLY REVIEW.

Histoire des Croisades, &c.; *i. e.* A History of the Crusades, Fourth Part, containing the Two Expeditions of Saint Louis, the Wars of the Christians against the Turks, and general Remarks on the Result of the Crusades. Vols. IV. and V. Also, the Bibliography of the Crusades, containing an Analysis of all the Chronicles of the East and West which treat of those Events; in Two Volumes, forming Vols. VI. and VII. By M. MICHAUD, of the French Academy. 8vo. Paris. 1822. Imported by Treuttel and Co. Price 2*l.* 2*s.*

M. MICHAUD has at length completed his laborious history of the Crusades. We have already noticed the earlier parts of his work with qualified approbation; and a perusal of these later volumes confirms us in the sentence which we then passed, on the abundance of the author's industry, on his deficiency in judgment, and on his want of those enlarged views of human nature and of society, which are absolutely necessary to qualify any writer to appreciate justly the benefits and the mischiefs resulting from these Quixotic enterprises of the dark ages. It is true that at the beginning of the last century, and particularly in France, it was very much the fashion to consider the Crusades as productive of unmixed evil; and the writers of the day thought that they could not sufficiently expose the arts and imposture of the Popes, and the delusion of the general body of Christians, without proving at the same time that this warfare of bigotry and infatuation recoiled with unqualified evil on those who commenced it. M. MICHAUD seems anxious, in his holy zeal, to go into the other extreme; and, as many advantages certainly did accrue from these circumstances to literature and to the arts, though such benefits were little connected with the object of the adventure, or within the contemplation of the adventurers, he chooses to fancy that it is the mere obstinacy of modern *philosophy* to characterize these holy wars as mad in their projection and absurd in principle. Perhaps, indeed, he considers himself as bound by the rules of his knighthood, (as belonging to the Order of St. John of Jerusalem, and of the Holy Sepulchre,) and justified by the spirit of certain parties and the revival of other orders in France, in the present day, to maintain that infidels may be edified by the sword; and that Christianity permits the extermination of those perverse beings who will not listen to self-evident truths, and refuse to be converted.

We know not whether it be the spirit of worldly hypocrisy, or the spirit of religious enthusiasm, or that strange mongrel spirit which is yet without a name in our language but is a compound of the two, and is more prevalent than either of them among political devotees, that has possessed the brain of M. MICHAUD: but so it is that even the last crusade, and the abundant follies of St. Louis in Egypt, are recorded by him with unaccountable admiration for the wisdom and sanctity of the monarch; and with a sort of indefinite wish that the days in which religion had such a happy influence on the lives and conduct of men, and when popes could govern kings and kings govern subjects as they listed, might once again shine on Europe, and exalt France as the leader of the champions of the faithful. The machinery of the politi-

cal system, however, has been much altered since the times on which his imagination dwells with so much fondness and regret; and other powers have been brought into the ascendant, to diffuse their influence over great events. The days of crusadism, we hope, are passed away; and the favourite notions of the present author on the supremacy of the Pope, and the mediate agency of legitimate despots, are as obsolete as the congenial dreams of judicial astrology.

"*Astra regunt homines, sed regit astra deus.*"

The last Crusade, and general reflections on the effects of those expeditions, occupy the fourth and fifth volumes. After having commented with so much frankness on the general bearing of M. MICHAUD's reflections, we have much pleasure in extracting a passage in which it will be seen that, now and then, clearer views of the state of society pressed themselves on his attention. The concluding observations on the circumstances in which Spain was placed, we think, are particularly just.

"The glory, which the emperors of Germany acquired by their conquests, was only personal glory, and could not interest the German people. This display of their power had nothing in common with the nation over which they ruled. As soon as this power ceased to be a bond, and a support of the people, they separated themselves from their chiefs, and each sought his safety, or his advancement, in his own strength.—This gave rise to a state of things which was more unfortunate perhaps for Germany than the absolute authority of the emperors; for, from the ruins of imperial grandeur arose a number of states, opposed one to another by a variety of laws and a spirit of rivalship. All those ecclesiastical and secular principalities in which a monarchical spirit prevailed, those towns in which a spirit of liberty fermented, and a nobility was animated by the hopes of an aristocracy, could have neither the same interests nor the same views, nor could their efforts be directed towards one common and salutary end.

"The Popes, after having destroyed the power of the Emperors, wished to dispose of the broken sceptre of Charlemagne, and offered it to all those who longed to satisfy their vengeance. A crowd of Princes was then to be seen, who, protected by the court of Rome, made pretensions to the empire; and the more the number of pretenders increased, the more ruinous became the state of the empire. In the midst of these civil dissentions, Germany lost for ever her political union, and in the end lost also her religious union.

"In order to judge how difficult it was to put in motion this enormous mass, which was called the German confederacy, it is sufficient to observe, in the 14th and 15th centuries, how numerous were the diets which assembled to deliberate on the war with the Turks, and in which even the actual presence of danger could not make them come to an energetic decision for the safety of Germany."—

"In each European nation, there was at that time an overwhelming power, or rather authority, which was, as it were, a rallying point; a centre round which a society was formed, and united its strength to defend its political existence. Italy had not, like France and other countries, this inestimable means of preservation. Nothing better proves the state of dissolution in which this rich country was, than the manner in which she endeavoured to maintain her independence in the middle ages. That separation into several states, that division of territory, that immense population formed into a thousand parts, all betray the absence of every tie, or of any common centre. Italy included many various people: twenty republics had each their own laws, interests, and history. These perpetual wars with the inhabitants of the same city, these quarrels with the different republics, the constant necessity of calling in strangers to support their cause, the suspicion which fell more on the citizens than on the hired adventurers, all tended to efface the true sentiment of patriotism, and caused even the name of the Italian nation to be forgotten.

"The feudal system was abolished sooner in Italy than elsewhere: but with the feudal system vanished also the ancient honour of the valiant, and the virtues of knighthood. In republics defended by mercenaries, valour, and the generous sen-

timents accompanying it, are no longer esteemed. Passion has no longer any curb either in the laws or the opinion of man; and it is in this sad period that we behold burst forth the hatred and vengeance which appear to us hardly probable when represented in our tragedies:—nothing is more afflicting than the spectacle of Italy in the fourteenth century; and we may say that Dante had only to look around him for the model of his *Hell*.

"Society, always ready to dissolve, appeared to have no other spring of action than the violence of party, no other life than discord or civil war: there was no guard against licentiousness but tyranny; and against tyranny nothing but the despair of faction, or the poniard of conspirators. As the strength of the greater part of these small states, which filled Italy, was rarely proportioned to their ambition,—and as the princes, or the citizens, for the same reason which rendered them weak, were at once deficient in both moderation and courage,—they sought their elevation or their safety by any means that treason or perfidy could suggest. Conspiracies, insurrections, and the most odious crimes, appeared justifiable, and requisite to support their quarrels, or to satisfy their ambition or their jealousy: in a word, morality disappeared, and then was formed that school of politics of which we find the lessons or rather the satires in the work of *Machiavel*.

"It has been said that the Italians had the first idea of what statesmen call *political balance:* but we do not think that Italy can claim such an honour: for that which is called political balance is not an invention, but the natural resource of weakness which seeks a support. Following the progress of events, we see that this long boasted system became unfortunate for Italy, by inviting thither those conquerors who have made it, even down to our days, the theatre of the most bloody wars.

"At the time of the Crusades, the cities of Lombardy, and the republics of Genoa, Pisa, and Venice, had attained great prosperity, derived from the trade with the East, which Italy carried on before the Crusades, and which she continued, with all the advantages that were opened to her by trans-marine enterprise.

"Finally, these republics, which disputed the empire of the seas, though they occupied only a nook of land in the Mediterranean; which had their eyes fixed on Syria, Egypt, and Greece; and which left to strangers the care of defending their territory, arming their own citizens solely for the protection of their commerce; these mercantile republics were much more fit to enrich Italy, than to maintain among the Italian people the feeling of real independence.

"We must, however, admire the republic of Venice, whose power had every where preceded the arms of the Crusaders, and whom the people of the middle age ought to regard as the queen of the East. Her decline began only when the progress of navigation, to which she had so much contributed, opened at length a way to the Indies, and led to the discovery of the New World. The greatest part of the other republics had neither the same splendour nor the same duration; and many among them, particularly those in which democracy prevailed, had disappeared, at the end of the crusades, in the chaos and tumult of the civil wars. In their stead, dukes and princes arose, who substituted the intrigues of politics for popular passions, and sometimes indulged their ambition in favouring the revival of literature and the arts, the true glory of Italy.—The kingdom of Naples and Sicily, situated at the extremity of Italy, was the route of the Crusaders to Greece and the East. The riches of that country, which appeared to have no guardians, and a territory which its inhabitants never knew how to defend, must often have tempted the avarice and ambition of the princes, and even of the knights, who went to seek their fortune in Asia. The history of this fine state, indeed, is interwoven for more than two centuries with that of the holy wars; and the Crusades often served as a pretext or an occasion to make a conquest of it. All the wars undertaken for the kingdom of Naples, which exhibited more monstrous crimes than glorious exploits, and more revolts than battles, completed the corruption of the Neapolitan character; which was always remarkable for a disposition to shake off the yoke of the reigning government, and for extreme resignation in submitting to the yoke of the conqueror.

"In thus glancing over the different countries of Europe, it is striking to observe the great diversity in the manners, institutions, and fate of their inhabitants. How can we trace the progress of civilization in the midst of so many republics and monarchies, some emerging brilliantly from the bosom of barbarism, while others are falling in ruins? Or how can we show the influence of the Crusades through so many revolutions, which had often the same cause, though their effects were so different, and frequently even so opposed to each other? Spain, to which

we are now going to turn our attention, will offer to us new pictures, and furnish us with fresh subjects of contemplation.

"Throughout the whole course of the Crusades, Spain was engaged at home in defending itself against the same Saracens which the other inhabitants of Europe were fighting in the East: but there were some Christian kingdoms at the north of the Peninsula, which began to make themselves formidable under Sancho the Great, king of Castile and Aragon. The valour of the Castilians, supported by the example of the Cid and the influence of chivalric manners, and assisted by warriors who joined them from every province in France, had succeeded in regaining Toledo before the end of the eleventh century. The conquests of the Spaniards, however, did not answer the brilliant expectations raised by their first successes; for the provinces were no sooner regained from the Moors than they were formed into separate kingdoms, and the power of Spain, so divided, was in fact even weakened by its own victories.

"The invasion of the Moors in Spain bore some resemblance to that of the Franks in Asia. As it was the Mohammedan religion which excited the Saracen warriors to battle, so it was the religion of Christ which inflamed the zeal and ardour of the soldiers of the Cross. Often had Africa and Asia replied to the appeal of the Mussulman colonies in Spain, in the same manner that Europe had answered the cry of alarm of its Christian colonies in Syria. In both cases enthusiasm gave birth to prodigies of valour, and kept fortune suspended for a long time between the contending people and their disputed religions.

"A spirit of independence naturally arose among the Spaniards in the midst of a war in which the state had need of all its citizens, and in which each citizen consequently acquired a great degree of importance. It has been justly remarked that a nation which has performed great actions, and a whole people that have been called to the defence of their country, entertain an exaggerated notion of their rights, are more exacting, and sometimes unjust to those who govern them, and are often tempted to employ against their sovereigns the strength which they had directed against their enemies. Thus it may be seen in the annals of Spain, that the noblesse and the people have shown themselves more turbulent there than in any other country, and that monarchy was more limited there than among other European nations.

"The institution of the Cortes, the enfranchisement of the Commons, and a number of privileges granted to towns, soon testified to the Spaniards the decay of the feudal system and of the absolute power of the kings. If we argued from the public acts of the legislature, we should imagine that the Spanish nation had enjoyed liberty before all the other people of Europe But, in such unsettled times, we must not judge of the liberty of a nation by what passed in the political tribunes, or by charters and institutions alternately obtained by violence and destroyed by force, and always situated between two rocks,—monarchy and despotism. The history of Spain at this period is filled with crimes and monstrous deeds, which injure the cause of princes not less than that of the people; and which prove at least that manners did not keep pace with the laws, and that institutions created in times of public discord had not softened the national character.

"In the midst of the revolutions which agitated Spain, political feelings sometimes even obliterated the recollection of the dominion of the Moors. When at the end of the thirteenth century the Mussulmans, defeated by John of Aragon, abandoned the Baleares, and the kingdoms of Valencia and Murcia, the Spaniards all at once suspended the progress of their arms. While in the East the victorious Mamelukes had redoubled their efforts to chase the Franks entirely from the coasts of Syria, in the West the Moors remained for two centuries in possession of a part of Spain, without the Spaniards making any serious attempt to regain their own country. The standard of Mohammed waved over the cities of the kingdom of Grenada, down to the reign of Ferdinand and Isabella; and it was only at that epoch that the Spanish monarchy sprung all-powerful out of the chaos of revolutions, and revived in the people that warlike and religious enthusiasm which achieved the expulsion of the Moors, Then was this struggle terminated which had lasted during eight centuries, and which, according to Spanish historians, had occasioned three thousand seven hundred battles. Such continued fighting, which was like one long crusade, must have been a school for valour and heroism. The Spaniards were in fact considered, in the sixteenth and seventeenth centuries, as the bravest and most warlike nation in Europe. Philosophers have endeavoured to account by the influence of climate for the fierce and haughty spirit, as well as the grave

and austere demeanour, by which to this day the Spanish nation is distinguished: but it appears to us more natural to seek for an explanation of this national character in a war both patriotic and religious, in which twenty successive generations concurred, and the dangers of which would naturally inspire so many serious reflections and promote so many noble sentiments."

This view of Spain, however, leads M. MICHAUD to some reflections, not in absolute justification, but in mitigation and extenuation, of the "Holy Inquisition:" but we forbear to continue an extract, for the present length of which we ought perhaps to apologize to our readers. We were anxious to do justice to the author; and the view which we have copied is in fact the most judicious passage which we have perused in the whole work.

Volumes VI. and VII. are occupied with what the writer terms the the Bibliography of the Crusades; consisting of a review of the original and contemporaneous writers on these expeditions, and an analysis of the contents of the principal chronicles respecting them. He accordingly specifies the authors whom he has found adapted to his purpose in the extensive collections of French historians by *Bongars, Duchêne, Martenne, Durand, Mabillon,* and the Benedictines; in the collection of English authors by *Gale;* of German authors by *Struvius, Heineccius, Pez,* and others; in *Baronius's* Ecclesiastical Annals; and in Rymer's *Fœdera.* These sources have been before examined by the principal modern writers on the Crusades, and particularly by Gibbon among our own countrymen: but M. MICHAUD's industry has engaged him also in an examination of the Oriental Chronicles; and, by the assistance of some friends conversant in the eastern languages, he has given valuable abstracts of such parts as are connected with the subjects of the Crusades. Some of the translations of important passages at full length, which he has interspersed, are exceedingly curious, and, as to all the principal events, corroborative in an extraordinary degree of our western annals: while the inflation and figurative language of the East give them a very amusing air.

Our readers may perhaps be pleased with the details of the death of the famous Saladin, and of the siege of Koukabac, which we quote as favourable and at the same time characteristic specimens of the Oriental Chronicles; and we are glad to close our remarks with such interesting results of the present author's indefatigable research.

"At the beginning of the year 1193, Saladin was most prosperously situated at Damascus, and, with Malek Adel, absented himself for a fortnight to enjoy the pleasures of the chase. On his return, his brother quitted him in order to repair to his principality of Carac, without knowing that he took leave of him forever! On Friday, the 21st of February, the Sultan mounted his horse to go and meet some pilgrims from Arabia. When on horseback he was generally clad in a cuirass made either of leather or hemp: but on this occasion he forgot it.

"It happened that a considerable crowd was assembled at the same place, either to see the pilgrims or in honour of the presence of the Sultan. The Prince, on welcoming their arrival, shed tears of commiseration, and reproached himself with not having shared their happiness. After the ceremony, Saladin returned to the citadel. On Saturday, he felt an unusual numbness, and on the following night had an access of bilious fever, and his illness assumed a serious aspect. On the fourth day he was bled, and from that time he continued to grow worse. On the ninth he was seized with an universal tremor, accompanied by delirium, so that it was not possible to make him swallow any medicine. In the mean time, the report of the Sultan's illness spread rapidly through the town; grief and consterna-

tion were painted on every countenance; the merchants no longer exhibited their goods; and it would be in vain to attempt to paint the state into which every one was plunged.

"On the twelfth day, that is to say, in the night preceding the 27th, the Sultan was at the last extremity; and the iman of the mosque of Kellasch went to the citadel in order to pass the night with him, and not quit him until after his death. Saladin expired on the following Wednesday, after morning prayer. He was washed by the khaytyb of Damascus. On the same day the body was placed on a covered bier, and they ascertained whether the money, which was employed to purchase the stuffs used to wrap it, was lawfully gained. On the same day, also, after the usual prayers, he was buried in the citadel, on the very spot on which he had died. His son, Malek Adel, received the customary compliments, and omitted nothing that could restore tranquillity to the minds of his people. 'Every heart,' said Boha'eddin, 'was a prey to grief; every eye was moistened with tears; and the affliction was so general that they forgot to plunder the city.' Malek Adel built, later than he had intended, a mausoleum near to the grand mosque, on the site of a house which had belonged to a rich man; and three years afterward he removed into it the body of his father, and accompanied the procession himself on foot, from the place in which he had deposited the corpse to the habitation prepared for its ultimate destination. After the prayers were concluded, the body was put into the ground, and Malek Adel retired into the palace, where for three hours he received compliments of condolence. Gitt'alscham, on this occasion, distributed considerable sums of money to the poor.

"Saladin was born at Tegrit on the Tigris, and died at the age of 57 (lunar) years, after having reigned over Egypt 24 years, and about 19 in Syria. At his death, he left in his treasury only 47 pieces of silver, (about 30 francs,) which were all that remained of the revenues of Egypt, Yémen, Syria, and a part of Mesopotamia. In such a prince, this was doubtless a proof of an excess of liberality, since he left neither house nor property.

"Saladin was never known for a moment to put off the performance of prayers; and he never offered them up except in company. When he undertook an enterprise, he put his trust in Providence, without believing that there was any more virtue in one day than in another. His manners were mild: he was patient under contradiction; and he showed great indulgence to the faults of those who served him. If his self-love was wounded by any remark, he took no notice of it, and showed no ill will to the person who had made it. One day, when he was seated in his own house, a Mameluke threw his boot violently at the head of one of his comrades; but, instead of striking the fellow's head, it fell quite close to the Sultan, and he was very near being hit by it. This kind-hearted prince, however, turned his head, and seemed not to perceive it.—In conversation he was reserved; his example inspired others with the same self-command; and nobody in his presence would dare to defame a fellow-creature.—With Saladin (said Emad'eddin his secretary) died all great men; with him all merit disappeared; goodness became unfashionable; the wicked might enjoy themselves; all rational happiness was extinguished; the earth was filled with darkness; the age had to deplore its phœnix; —and islamism lost its support."—

Siege of Koukabac.

"While Safed was closely besieged, the Franks who were collected at Tyre reasoned thus: If Safed is taken, Koukabac will not resist; and we shall be deceived in our hope of retaining it. We ought therefore to send it prompt assistance, and perhaps it may courageously resist till the arrival of our princes from the West. They therefore despatched 200 men, who dispersed themselves in the valleys, and laid ambushes in the defiles. It happened that one of our Emirs, being hunting, met one of these Infidels, who was astonished at finding him in this place; and, by threats and punishments of various kinds, he forced him to confess where his companions were concealed. While they were expecting nothing, Saam'eddin fell on them with his troop, chased them all from their retreats, and not one escaped. We, who were engaged at the siege of Safed, were ignorant of all this, when Saam'eddin arrived with his prisoners in chains.

"Afterward (*proceeded Omad*) we came to Koukabac, and we found this fortress as if it were attached to the stars; it appeared like the eirie of eagles, and the dwelling-house of the moon. It was inhabited by barking dogs, and perfidious wolves, who excited hatred: they said among each other, 'If there be only one of

us left, he will maintain the order of the Hospitalers, and will preserve it forever from infamy, for the Franks will return into these countries; and in the mean time let us defend ourselves with all our strength.' The siege began; the walls, attacked by machines, gave way, and we made large breaches in them. The season was a severe one; the rain was abundant; the torrents increased; the tents were overthrown into the dirt. We were constantly occupied in driving into the ground the stakes by which they were held, and which were drawn out every moment: but the cords becoming loosened the tents fell. The sky was darkened by storms. Notwithstanding the torrents of rain, drink was scarce: the roads were either slippery or dirty; and, although once broad, they were become narrow. The Sultan moved his tent to a spot whence he could see the barriers which had been raised. He ordered all the baggage to be transported to the foot of the mountain, and attacked the citadel with great vigour. Every morning and every evening we went to him to offer him our salutation, and proceeded in our work till the miners had succeeded. The Infidels then deemed it proper to submit, and abandoned the citadel. The Sultan offered the government of it to several of his Emirs, and Scheimaz was forced to accept of it, in spite of himself. Saladin then returned to his camp in the province of Gour.

"The following details, relative to what passed at the siege of Koukabac, are to be found in a letter written by Fadel to the Prince of Yémen:

"'This city is the dwelling-place of the Hospitalers, and the abode of infidelity. It is the usual residence of the grand masters of this order; it is the depôt of their arms and provisions; and it serves as the point of union of the roads. We have waited for an opportunity to attack it, and this siege has terminated all the others. The roads are now safe and quiet. We are in peaceable possession of the fortresses, and Tyre is now the only city that is wanting to us. If this town were not succoured by vessels which approach its walls, it would soon be in our power, and the refractory persons within it would be forced to yield us obedience. Heaven be praised, they are not in an ark which protects them, but rather in a prison! They are captives, although they may have been freely dismissed; they are dead, although living. God has said, do not oppress them, but God has appointed their time. We came to Koukabac, after having made ourselves masters of Safed, which belonged to the Templars; we have taken Karac and its citadel. The divan of Syria has learnt how painful, difficult, and embarrassing a work this has been to the Mussulmans. Nothing is heard in the towns of Syria but conversations on the unjust and presumptuous conduct of the Infidels. When we came to Koukabac, the winter was very severe; the sky surcharged with clouds; the hills covered with snow; the valleys resounded with the noise of the waters rushing down into them; overwhelming torrents leaving visible signs of their passage, by furrowing the ground, and depositing their slime and mud at the foot of the mountains. The mud rendered the roads impracticable, and even an unincumbered man walked in them as if his feet were in shackles. Our soldiers, and we ourselves, supported courageously the fatigue of the journey, and combated at once both the enemy and the season: our good fortune crowned us with victory. God knew our motives, and seconded our endeavours. He saw our sincerity, and gave us success.

"'There were none among the Franks but barking dogs, deceived by Satan. If we had not attacked them on all sides, they would have rushed on us like lions. Falsehood would have triumphed over truth. Our brothers of Alexandria, the Emperor of Constantinople, and the governors of the western provinces, have all written to acquaint us with what the foe proposed to do against us. They informed us that, excited by anger, our enemies had lighted the flame of war, which they wished us to commence, and they had unsheathed the sword to attack us: but they shall soon restore it to its scabbard. The disciples of error had made a treaty among them. May God confound them! With his assistance we shall repulse his enemies. Let us supplicate God to strengthen our hearts, and to keep us united. If our hearts are weak, it is to be feared that we shall be divided.

"'We shall attack Antioch this year, and shall send our son Mozafa to besiege Tropoli. Malek Adel will remain in Egypt, and guard the country; for it is said that the enemies have planned an invasion of this coast, and intend to disperse their troops through this kingdom and in Syria. Our minds will not be perfectly tranquil until Sefaysislam has entered the maritime places; when, with the sword in hand, he will watch over the towns that we have taken, and reduce those that we have not yet been able to render submissive to our power. Great men only

can be chosen to perform great actions; honourable men can alone make a figure on the amphitheatre! Whatever God decrees, that will be performed. His will surmounts all obstacles. If he pleases, he can make us conquerors over a great multitude, although we ourselves may be only a small number of warriors.' "

Extracts from Scoresby's "Journal of a Voyage to the Northern Whale Fishery," made in the Summer of 1822, *in the Ship Baffin, of Liverpool.*

The ship Baffin, of Liverpool, under my command, was equipped for her third voyage to the Greenland whale-fishery, in the spring of the year 1822.

The night of the 7th–8th of June was stormy, with snow or fog; but, at four in the afternoon, the wind having subsided, the sky became perfectly clear. Land was then discovered, extending from N. by E. (by the compass) to N. W.; the nearest part supposed to be at the distance of fifty miles. This was the eastern coast of Greenland, being an extension, or continuation towards the north, of that coast on which the ancient Icelandic colonies were planted in the tenth century. I looked on it with intense interest, and flattered myself with the hope of being able to land upon some of its picturesque crags, where European foot had never trod, before the season for the fisheries should come to a close. As no ship had ever before penetrated (I had reason to believe) within sight of this coast, at so early a period of the summer, I was encouraged to expect that my wishes would not be difficult to accomplish; and, as the main design of my voyage was fortunately compatible with researches about this unknown region, I determined immediately to penetrate, as far as possible, towards the shore.

Our latitude being 74° 6′, I took the southernmost land in sight to be the Hold-with-Hope of Hudson; and the most northerly, having the appearance of an island, to be the eastern headland of Gale Hamkes' Bay, discovered, according to the charts, in 1654.

On attempting to proceed to the N. W. we were soon interrupted by an impervious barrier of fields and floes closely wedged together. One opening only was visible in this direction; but it was not accessible. We were obliged, therefore, to wait until some alteration in the ice should take place and open us a passage. The evening being calm, I took a boat for the purpose of examining the points of junction of the floes with each other, that I might mark the first relaxation of pressure, which often is found to occur in calms, and take advantage of it, for accomplishing my design of approaching the land. No relaxation, however, sufficient for our purpose, was observed.

I was much struck with the resemblance to works of art, of some of the numerous ponderous blocks of ice past which we rowed. One mass resembled a colossal human figure, reclining in the position of the Theseus of the Elgin collection. The profile of the head was really striking; the eye, the forehead, and the mouth, surmounted by mustaches, were distinctly marked. Such resemblances in the forms assumed by the drift-ice and hummocks, which occur in an infinite diversity in the Arctic Seas, are not uncommon. In some instances, possibly, the aid of a fertile imagination may be requisite to put a

shapeless lump of ice into form; but, in others, the resemblances are so striking and characteristic, that the eye of the most incurious can scarcely fail to be impressed by them. In the course of my last voyage, I sketched about twenty specimens of this kind, the whole of which had something interesting or extraordinary in their construction. Among these were two masses, presenting most excellent figures of the polar bear, one of them raised upon a pedestal of about thirty feet in height,—several antique tables,—a table surrounded by a fringe of large stalactites of crystalline ice,—resemblances of the heads of lions, and other animals,—together with two or three busts, and other pieces of very tolerable statuary,—and also a sort of portico, with doric columns, consisting of capitals, with ovalo, astragal, and other mouldings, with a portion of the shaft, supported on a base of ice rendered invisible by its submersion in the sea.

These extraordinary resemblances occur the most frequently in the drift-ice occupying the skirts of the main body of the polar ice, and particularly in those masses, on which prodigious blocks or hummocks, the original effect of pressure, are reared on separate bases. From the detrition of the sea-water, during high winds and considerable swells, these shapeless masses are often worn into such interesting and striking forms, as to force themselves on the attention. The most common form of artificial appearance is the table. In this the stalk is often perfectly circular and vertical, and the top exactly on a level. The mode of its formation is not difficult to explain. The action of the sea when the surface is ruffled, but not turbulent, washes away the ice above the floating level, and undermines the top. The occasional revolutions of the ice, to which most of the smaller pieces are liable, exposes every part progressively to the detrition of the waves, and thus produces a stem of a cylindrical form. In a manner somewhat similar, I apprehend, the doric columns above noticed were produced. In this block of ice two perforations had been produced, for which, either the unequal action of the waves upon it, or an unequal breadth or degree of hardness of the ice, might account. When the pillars on each side of these perforations had become cylindrical, like the stem of the table above described, to which there is always a tendency in such masses as revolve,—suppose a piece of the roof or entablature to break off, the base relieved of so much weight, would necessarily rise a little in the water, and the pillars would be lifted up along with it. A continuation of the detrition of the wind-lipper, or smaller waves (the piece of ice being now supposed to be in a situation sheltered from the main swells of the ocean), would no doubt, reduce the columns below the level of the former action, and thus produce a moulding: a repetition of this process, after a second mass from the top had been accidentally detached (a circumstance that is perpetually taking place), would account for the construction of a second moulding, and so on, until the regular columns that I have actually observed, not in one piece of ice only, but in three different masses, were completed. Thus, the production of architectural resemblances, of a very artificial kind, may, I think, be satisfactorily explained; but the development of many of the other figures that I have seen, can be accounted for only on the principle, that, in a variety of accidental forms, which, with regard to the polar ice, is almost infinite, such similitudes of animals and of the works of art must

occur. It should be observed, however, that very few of the curious figures in ice will maintain their character, when examined in all positions; it is, perhaps, only in one aspect that the appearance is at all interesting. The outline is the principal thing necessary for determining the resemblance, since the beautiful whiteness and reflection of light, are generally such, as to conceal the defects of the surface, by preventing the inequalities from being detected by the eye.

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The general trending of the east coast of Greenland, extending from Gale Hamkes' Bay, in latitude 75°, to Bontekoe Island and Hold-with-Hope, in 73° 30′, is S.S.W., true. It is almost wholly mountainous, rugged, and barren. Its general character is not unlike that of Spitzbergen; but the quantity of snow upon it seems to be generally less. Its ordinary height I estimated at 3000 feet; an elevation which it probably attains within a mile or two of the sea.

Of the land now surveyed, only three or four places are noticed in the charts: these are *Gale Hamkes' Bay* and *Land* at one extremity, and *Bontekoe's Island* and *Hudson's Hold-with-Hope* at the other. There is also, *Broer Ruy's Land;* but I apprehend it is synonymous with Hold-with-Hope. These places can only be recognised from the latitude in which they are laid down; the longitudes being extremely wide of the truth, and their relative positions inaccurate. From Gale Hamkes' Bay to Bontekoe Island, there are no capes or inlets laid down; whereas the coast presents many striking headlands and deep indentations. Hence it became a matter of convevience to give names to the most remarkable promontories, inlets, and islands; and in this, I considered myself justified, by the example of former navigators; particularly as my survey was the first that had ever been attempted of this coast, and many of my researches appeared to be original discoveries. The names now applied I derived partly from peculiar characters observed in the land; but more generally from the remembrance of respected friends, to whom I was wishful to pay a compliment that might possibly survive the lapse of ages.

The northernmost land seen, as I have before observed, coincided in latitude with the position usually given to the land of Gale Hamkes, said to have been discovered in the year 1654, by a Dutch whale fisher of this name, commanding a ship called the Orangebovn, and an inlet stretching to the north-west, adjoining it, had such an appearance and position, as seemed to identify it with Gale Hamkes' Bay. The eastern headland of this bay lies in latitude about 74° 59′, and in longitude 18° 50′ W., differing from the meridian given to it by the best charts, about seven degrees, and from that given to it by the charts published for the use of the whale-fisheries, 820 miles longitude, or nearly fourteen degrees!

A little to the south-west of Gale Hamkes' Bay, is another inlet, to which I gave the name of *Kater's Bay;* and to a bold tract of land lying a few leagues to the southward of this bay, I applied the name of *Wollaston Foreland*, as a testimony of respect to two of the commissioners of longitude. An opening a little farther south was named, in compliment to the Secretary of the Board of Longitude, *Young's Bay*. Wollaston Foreland will, I expect, prove to be an island of about four leagues in extent. It is remarkably black and mountain-

ous; and at this time was less clothed with snow than any of the adjoining coast. After another tract of high land, of a somewhat different character, a considerable inlet was discovered, in latitude 74° 5′, in which no land towards the north-west was ever seen during our stay on the coast. It was named *Scott's Inlet*, in honour of Sir Walter Scott. A fine bold and picturesque *foreland* lies immediately to the southward of Scott's Inlet, to which the name of *Sir Everard Home* was applied.

In addition to the places now mentioned, other capes and bays were named in compliment to the following much respected individuals:—viz. Sir Thomas Brisbane, Dr. Brinkely, Colonel Beaufoy, Dr. Holland, Mr. J. F. W. Herschel, and my brothers-in-law, the Rev. John Arundel, Captain Jackson, and Mr. John Clark, whose names appear in the northern part of the general chart of researches which accompanies this volume.

The southernmost land hitherto seen, lying three or four leagues, S. by E., true, from Home's Foreland, was taken to be Bontekoe Island, a place laid down in some charts, though not within fifteen miles of the same latitude. It is high precipitous land, and of a particularly dark appearance. Its longitude I found to be 20° 40′ W., instead of 7° 5′ W., the position given to it in the charts for the whale-fisheries.

About half a degree of longitude to the westward of Bontekoe Island, is a remarkable headland, which is probably the same that was discovered by Henry Hudson, in the year 1607, and named by him Hold-with-Hope. From thence the land trends more to the westward.

In the midst of my operations for the survey of this coast, it fortunately happened, that the moon, at a convenient distance from the sun, for determining the longitude, became visible. This was a circumstance of great importance to me, and was instantly embraced, for correcting the rate of my chronometer, it being impossible altogether to depend on the going of a single time-piece. The weather was uncommonly favourable, so as to enable me to take the distances with the greatest precision. From six sets of distances and altitudes, I obtained the mean longitude of 17° 54′ 30″ W., for the place of the ship on the 14th of June, and found the error of the chronometer to be nearly four minutes of time.

These satisfactory observations for the longitude (established by many subsequent proofs), enabled me to ascertain the exact effect, in a particular case, of the extraordinary refractive property of the atmosphere in the Arctic Seas, which, without such proofs, would scarcely have been credible. The coast that has just been described, is in general so bold, as to be distinctly visible in the ordinary state of the atmosphere, at the distance of sixty miles; but on my last voyage into these regions, one part of this coast was seen when at more than double this distance. The particulars were these:—Towards the end of July, 1821, being among the ice in latitude 74° 10′, and longitude, by lunar observation and chronometer, (which agreed to twenty-two minutes of longitude, or within six geographical miles), 12° 30′ 15″ W., land was seen from the mast-head to the westward occasionally, for three successive days. It was so distinct and bold, that Captain Manby, who accompanied me on that voyage, and whose observations are already before the public, was enabled, at one time, to take

a sketch of it from the deck, whilst I took a similar sketch from the mast-head, which is preserved in my journal of that year. The land at that time nearest to us was Wollaston Foreland, which, by my late surveys, proves to lie in latitude 74° 25′ (the middle part of it), and longitude 19° 50′: the distance, therefore, must have been at least 120 miles. But Home's Foreland, in 21° W. longitude, distinguished by two remarkable hummocks at its extremities, was also seen; its distance, by calculation, founded on astronomical observations, being 140 geographical, or 160 English miles. In an ordinary state of the atmosphere (supposing the refraction to be one-twelfth of the distance), any land to have been visible from a ship's mast-head, an hundred feet high, at the distance of 140 miles, must have been at least two nautical miles, or 12,000 feet in elevation; but as the land in question is not more than 3500 feet in altitude, (by estimation,) there must have been an extraordinary effect of refraction equal to 8500 feet. Now, the angle corresponding with an altitude of 8500 feet, and a distance of 140 miles, is 34′ 47″, the value of the extraordinary refraction, at the time the land was thus seen; or, calculating in the proportion of the distance, which is the most usual manner of estimating the refraction, it amounted to one-fourth of the arch of distance, instead of one-twelfth, the mean quantity.

That land was seen under these circumstances there cannot be a doubt; for it was observed to be in the same position, and under a similar form, on the 18th, 23d, 24th, and 25th July, 1821, when the ship was in longitude from 12° 30′, to 11° 50′ W., and on the 23d it remained visible for twenty-four hours together; and though often changing its appearance, by the varying influence of the refraction, it constantly preserved a uniformity of position, and general similarity of character. In my journal of this day, I find I have observed, that my doubts about the reality of the land were now entirely removed, since, with a telescope, from the mast-head, "hills, dells, patches of snow, and masses of naked rock, could be satisfactorily traced, during four-and-twenty hours successively." This extraordinary effect of refraction, therefore, I conceive to be fully established.

In the course of the night a bear was seen prowling about upon one of the adjoining sheets of ice, which, soon afterwards attempting to swim across an opening near the ship, was immediately pursued by one of our boats, and attacked by the harpooner commanding it, who wounded it with a lance, and, after it had bravely given battle for some time, eventually overcame it. It was a fine large specimen, the skin, which was very white, and well furred, measuring about eight feet in length.

We had expected to have seen very many of these animals on the coast of Greenland, as in a former voyage, on approaching this situation, we saw about a hundred, of which more than twenty were killed, and four taken alive; but in this expectation we were quite disappointed, not more than three having yet been seen, and of these only one, the bear now captured, having given us a chance of attacking it, the other two prudently keeping on the middle of a large field of ice, where we had little encouragement to pursue them.

When the bear is found in the water, crossing from one sheet of ice to another, it may generally be attacked with advantage; but,

when on the shore, or more especially when it is upon a large sheet of ice, covered with snow,—on which the bear supporting itself upon the surface, with its extended paws, can travel with twice the speed of a man, who, perhaps, sinks to the knees at every step,—it can seldom be assailed with either safety or success. Most of the fatal accidents that have occurred with bears, have been the result of rencounters on the ice, or injudicious attacks made at such disadvantage.

A few years ago, when one of the Davis' Straits whalers was closely beset among the ice at the "south-west," or on the coast of Labrador, a bear that had for some time been seen near the ship, at length became so bold, as to approach alongside, tempted probably by the offal of the provisions that had been thrown overboard by the cook. At this time, the people were all at dinner, no one being required to keep the deck in the then immovable state of the ship. A hardy fellow, who first looked out, perceiving the bear so near, imprudently jumped upon the ice, armed only with a handspike, with a view, it is supposed, of securing all the honour of the exploit of capturing so fierce a visiter to himself. But the bear, regardless of such weapons, and sharpened probably by hunger, immediately, it should seem, disarmed his antagonist, and, seizing him by the back with his powerful jaws, carried him off with such celerity, that, on his dismayed comrades rising from their meal, and looking abroad, he was so far beyond their reach as to defy their pursuit.

A circumstance, communicated to me by Captain Munroe of the Neptune, of rather a humorous nature as to the result, arose out of an equally imprudent attack made on a bear in the Greenland fishery of 1820, by a seaman employed in one of the Hull whalers. The ship was moored to a field of ice, on which, at a considerable distance, a large bear was observed prowling about for prey. One of the ship's company, emboldened by an artificial courage, derived from the free use of his rum, which, in his economy, he had stored for special occasions, undertook to pursue and attack the bear that was within view. Armed only with a whale-lance, he resolutely, and against all persuasion, set out on his adventurous exploit. A fatiguing journey of about half a league, over a surface of yielding snow, and rugged hummocks, brought him within a few yards of the enemy, which, to his surprise, undauntedly faced him, and seemed to invite him to the combat. His courage being by this time greatly subdued, partly by the evaporation of the stimulus he had employed, and partly by the undismayed, and even threatening aspect of the bear, he levelled his lance in an attitude suited either for offensive or defensive action, and stopped. The bear also stood still. In vain the adventurer tried to rally courage to make the attack; his enemy was too formidable, and his appearance too imposing. In vain also he shouted,—advanced his lance,—and made feints of attack; the enemy either not understanding them, or despising such unmanliness, obstinately stood his ground. Already the limbs of the sailor began to shake,—the lance trembled in the rest,—and his gaze, which had hitherto been steadfast, began to quiver; but the fear of ridicule from his messmates still had its influence, and he yet scarcely dared to retreat. Bruin, however, possessing less reflection, or being more regardless of consequences, began, with the most audacious boldness, to advance. His nigh approach, and unshaken step, subdued the spark of bravery, and

that dread of ridicule, that had hitherto upheld our adventurer; he turned and fled. But now was the time of danger. The sailor's flight encouraged the bear in his turn to pursue; and being better practised in snow travelling, and better provided for it, he rapidly gained upon the fugitive. The whale-lance, his only defence, encumbering him in his retreat, he threw it down, and kept on. This fortunately excited the bear's attention; he stopped,—pawed it,—bit it, and then resumed the chase. Again he was at the heels of the panting seaman, who, conscious of the favourable effect of the lance, dropped a mitten: the stratagem succeeded, and, while Bruin again stopped to examine it, the fugitive, improving the interval, made considerable progress *a-head*. Still the bear resumed the pursuit, with the most provoking perseverance, excepting when arrested by another mitten, and finally by a hat, which he tore to shreds between his teeth and his paws, and would no doubt have soon made the incautious adventurer his victim, who was rapidly losing strength and heart, but for the prompt and well-timed assistance of his shipmates, who, observing that the affair had assumed a dangerous aspect, sallied out to his rescue. The little phalanx opened him a passage, and then closed to receive the bold assailant. Though now beyond the reach of his adversary, the dismayed fugitive continued onward, impelled by his fears, and never relaxed his exertions until he fairly reached the shelter of the ship! Bruin once more prudently came to a stand, and for a moment seemed to survey his enemies with all the consideration of an experienced general; when, finding them too numerous for a reasonable hope of success, he very wisely wheeled about, and succeeded in making a safe and honourable retreat.

A thick fog prevailed the greater part of the fifteenth of June, and so bewildered us, that we with difficulty found room for working the ship. As we were anxious to escape from our confinement, we occasionally explored the boundaries and recesses of the ice to which we had access; and in the evening, when thus employed, fortunately discovered an outlet leading to windward, through which we succeeded in beating a passage, though the width was not above a hundred yards. This led us to the west side of the field that had detained us on the 10th, and some preceding days. Here we "dodged" during a gale of wind which we had on the following day. Seven or eight ships were at this time discovered from the mast-head, at a distance to the eastward: their appearance excited considerable interest with all hands, from the circumstance of our having been for a long time entirely alone.

On Monday morning, June 17th, we proceeded in search of openings amid the southern floes, and succeeded in finding an outlet in the desired direction. In the afternoon, we fell into a sea of a fine turbid green colour, which gave us increased hopes of whales; and, about midnight, I was gratified by the appearance of one, but it was at a great distance, and retired out of sight before the boats could reach the place.

The weather was perfectly clear, and the land in sight all the day; although a few miles to the eastward of us there was evidently a thick fog. As we advanced to the southward, some additional headlands lying to the westward of us were discovered, and the bearings of them taken. I obtained good sights for the longitude, both in the

forenoon and afternoon, which agreed to a mere trifle: the mean was 17° 40′ 10″ W. A set of azimuths gave the variation 43° 15′ W. The latitude at noon was 73° 17′.

On the 18th, there being many appearances of the proximity of whales, we penetrated the main western ice, through a most intricate navigation, for some miles; but finding the colour and quality of the water changing to blue and transparent, we returned.

An opportunity again occurred of prosecuting my surveys, and some additional bays, islands, and headlands appeared in sight; but the distance was too great for getting the accurate outline. An opening of the land, the head of which was not seen, occurs about five leagues to the westward of Bontekoe. It was named, in compliment to Sir George S. Mackenzie, *Mackenzie's Inlet*. Its direction appears to be N. W., true. To the southward of this, is a bold foreland, the extremities of which are crested by two remarkable hills. The northern one recived the name of *Cape Giesecké*, in compliment to Sir Charles Giesecké of Dublin; and the southern one obtained the name of *Cape Franklin*, after the persevering commander of the overland expedition for exploring the coasts of the Arctic Ocean. A cape a little more southerly, was named in compliment to the celebrated traveller, *Baron Alexander de Humboldt*; and three others still farther to the southward, out of respect to *M. de Rossel*, member of the Institute of France; the *Marquis de la Place*; and *M. Freycinet*, who circumnavigated the globe in the Uranio. A small island lying to the westward of Bontekoe, I named after *Captain Bennet*, of the Venerable whaler, who furnished me with some chronometrical observations on the longitudes of two or three adjoining headlands, which very nealy corresponded with my own. Our latitude at noon was 73° 1′; longitude, by chronometer, 18° 1′ W.

In the evening, we stretched a few miles to the eastward, and fell in with some whales. Two ships that were on the "ground" before us made captures. Several other vessels afterwards came up, but neither they nor we were successful.

On the 19th of June, the weather was calm and clear; the sun warm, and almost oppressive. The sea reflected objects as accurately as a mirror, its surface for hours being unruffled by a breeze. The strong action of the sun's rays soon produced such an unequal density in the atmosphere, that some of the most extraordinary phenomena to which this circumstance gives rise, were exhibited. The land, to appearance, was suddenly brought fifteen or twenty miles nearer us; its boldness and clearness, as seen from the deck, being superior to what its elevation and distinctness had previously been, as seen from the mast-head. The ice about the horizon assumed various singular forms:—hummocks became vertical columns,—floes and fields arose above the horizon, like cliffs of prismatic formed spar,—and, in many places, the ice was reflected in the atmosphere at some minutes elevation above the horizon. The ships around us, consisting of eight or nine sail, presented extraordinary characters. Their sails and masts were strangely distorted. Sometimes the courses would be depressed to almost nothing; the topsails expanded to near four times their proper height, and the topgallant-sails truncated. Occasionally a very odd spectacle occurred: an additional sail appeared above the topgallant-sail, like a royal hang-

ing loose; and sometimes the expanded topsail divided into two distinct sails, by the separation of all the additional height given by the refraction, which, slowly rolling upward, as it were, like the lifting of a curtain, dispersed and became invisible, after leaving the mast-head. Above some distant ships there was an inverted image in the air, many times larger than the object itself; this, in some instances, was at a considerable elevation above the ship; but it was found to be of a less size whenever the original and the image were not in contact. The image of one ship was distinctly seen for several minutes together, though the object to which it referred was not in sight. One ship was crowned with two images; the first an inverted one, and the second, a circumstance I never before observed, in its proper position. Altogether, the shipping, and other objects around us, presented a most amusing spectacle. They were perpetually changing their appearance, and afforded me abundant entertainment for hours together. The most remarkable effect produced, was on the most distant objects, the interesting appearances of which not being discernible without the use of a telescope, probably escaped general observation.

On Monday, July 1st, the fog gave place to rain, which somewhat extended the limit of vision. We immediately made sail; and, after beating all night to the south-eastward, to round a point of ice, we penetrated between two chains of floes towards the N.N.E., until we fell in with several whales. Three vessels near us all made captures; but we were not successful.

The next day was perfectly calm, and the weather fine. In a bight formed by the union of a floe with a body of drift-ice, a great number of whales were discovered. All the boats were despatched in pursuit, and remained on the watch, or in chase, for about ten hours; but the weather was so calm and still, that almost every fish they approached within a ship's length took the alarm. The boats having been recalled by signal, two were sent, as a last effort, into a promising situation, on the borders of a floe, where they had not remained long, before a large whale arose near one of them, and received a harpoon. It remained nearly an hour invisible, and then arose exhausted to the surface, close to the place where the ship was made fast to the ice. A second harpoon was immediately fastened, and it was so promptly plied with lances, that it had not power to descend afterwards, but died in a few minutes, within fifty yards of the ship. The extraordinary exhaustion of this whale, was owing to the long time it remained under water, and the depth to which it descended. Most other animals, when attacked, instinctively pursue a conduct which is generally the best calculated to secure their escape; but not so the whale. Were it to remain on the surface after being harpooned,—to press steadily forward in one direction,—and to exert the wonderful strength that it possesses; or were it to await the attacks of its enemies, and repel them by well-timed flourishes of its tremendous tail, it would often victoriously dispute the field with man, whose strength and bulk scarcely exceeds a nine hundredth part of its own. But like the rest of the lower animals, it was designed by Him who "created great whales, and every living creature that moveth," to be subject to man; and, therefore, when attacked by him, it perishes by its simplicity. Instead of repelling his attacks, it generally dives at once to an immense depth, where under a pressure often exceeding 200,000 tons upon its body, it be-

comes so exhausted, that, on its return to the surface of the sea, it becomes an easy prey.

The conduct of the whale, in this respect, intimates, that the instinctive faculty generally possessed by the lower animals, and employed for the purpose of self-preservation, directs it to descend to the depths of the ocean for escaping its natural enemies in the same element; and it farther intimates, that, whatever these enemies may consist of, whether sword-fish, thrashers, or sharks, since it avoids them by this means, it must be able to descend lower, and to sustain a greater degree of pressure from the superincumbent water, than any of the animals that are in the habit of attacking it.

The 8th of July was a fine clear day, with brilliant sunshine. Some land to the northward being seen for the first time, I attempted to carry on my survey; but the whole coast was found to be so disfigured by refraction, that I could not recognise a single mountain or headland. The wind having changed to south-west, we made rapid progress towards the north. At midnight we hove-too at the edge of a large heavy field, where a narwal and several razor-backs (Balæna physalis) had been seen, but no whales.

The morning of the 9th was brilliant, with light winds, and a highly refractive state of the atmosphere. The land, and a number of ships that came within sight, as well as the ice, and indeed all distant objects, were strangely distorted. Inverted images of two ships, occasionally double, were seen in the air, which, I imagine, were at least ten miles beyond the limit of direct vision; for we approached them about this distance without being able to see them. In addition to the phenomena observed and described on the 19th of June, &c., I noticed several vessels that had their hulls elevated to the apparent magnitude of a castle; the height of the hull, in some instances, being equal to that of the masts: in two or three positions, the courses seemed to be separated twenty or thirty yards from the hull, instead of being nearly in contact. So unequal was the refraction, and so various in its effects, that while in one ship the masts were uniformly expanded, or the hull magnified, in another ship the courses and topgallant-sails were heightened, and the intermediate sails, the topsails, contracted to one-fourth their proper size,—and in a third, a very little distance from this, the courses and topgallant-sails were contracted, and the topsails expanded. In all these examples the peculiarities were continually varying. No sooner had one appearance been examined and sketched, than it changed, and often exhibited the most uncouth proportions. The distant ice partook also of the same influence, and presented very extraordinary and often beautiful resemblances to magnificent architectural structures.

The most useful and ennobling view of natural history is unquestionably that which gives us the most exalted conceptions of the wisdom, goodness, and power of the Creator. And the branch of this science, that is in the highest degree calculated to assist us in tracing "the works of Nature, up to Nature's God," is probably the physiology of animals. In every genus of animals, we discover peculiar marks of adaptation for their economy or mode of life; and an endless variety of inimitable contrivances for accomplishing this adaptation.

The whale, which is a mammiferous animal, and closely allied, in its anatomical structure, to the class of quadrupeds, affords, in the

modification of the parts and principles of land animals, for applying them to a tribe inhabiting the sea, a great number of those striking displays of wisdom and power, the very contemplation of which, is calculated to elevate, in no inconsiderable degree, our conceptions of the Great Supreme. The mysticetus feeds on the smallest insects;—its capacious mouth, with the two vast fringes of whalebone, which is a most admirable filter, enables it to receive some tuns of water at a mouthful, and to separate every substance from it, of the size of a pin's head, and upwards. The physalis feeds on herrings, mackerel, and other fishes of a similar kind; its whalebone, therefore, is shorter, stronger, and less compact, than that of the mysticetus, and the filter formed by it less perfect.

As the whale must rise to the surface of the sea to breathe, its tail is placed horizontally, to enable it to ascend and descend more quickly; and its nostrils or blow-holes, instead of being placed at the snout, are generally on the most elevated part of the head, that they may be readily lifted clear of the water.

When the whale descends to the depths of the ocean, it becomes exposed to an enormous pressure from the superincumbent water. This pressure is sufficient to force the water through the pores of the hardest wood; yet it is effectually resisted by the skin of the whale, though it is remarkably soft and flexible. To exclude the water from the lungs, which would occasion suffocation, if admitted, the blow-holes are defended by the peculiar valves that have been already described.

The variety discovered in the structure of the valves of the blow-holes of whales, is by no means one of the least interesting parts of their physiology. In other classes of animals, whose habits are similar, we often find, that each organ is the same as the corresponding one, in almost all the species of the same genus, or even of the same order; excepting when their peculiar habits, or necessities require a modification of the general structure or principle. But in whales, as if it were intended, not only to exhibit the matchless wisdom of the Creator, but, to show that his resources are unlimited, the structure of the breathing canals is varied in the different genera of cetaceous animals, and a number of contrivances, alike extraordinary, equally beautiful, and equally efficient, are adopted for performing the same office.

As soon as the fog had cleared away on the 16th, the influence of the sun that was then most powerful, soon began to produce a rapid evaporation from the surface of the sea and ice,—this gave rise to the optical phenomena of unequal refraction, which continued to operate with ever varying effect, for sixty or seventy hours. At one period (about ten P. M. of the 16th) the phenomenon was so universal, that the space in which the ship navigated seemed to be one vast circular area, bounded by a mural precipice, of great elevation, of basaltic ice. In some places where water, instead of ice, was seen through the refracting medium, the cliff it seemed to constitute, had the colour and appearance of real basaltic columns; and where both water and ice were refracted, the specks and patches of ice had sometimes so much of the character and appearance of land, that one of my principal officers, who was familiar with the general phenomena, was deceived by it. Sometimes the effect of the refraction was similar in

all quarters; at others it presented various striking differences. Often the hummocky parts of the horizon were reared into various architectural figures of extraordinary elevation: and occasionally, as observed in a former instance, the whole distant margin of ice was deeply serrated, in resemblance of an innumerable collection of spires and pinnacles, or in the form of a thick forest of naked trees.

In the evening of the 18th, a great number of ships (to the amount of about thirty) being in sight, several novelties, with regard to their refracted appearance occurred, together with some peculiarities in the form and character of the land. On the preceding day, as well as on the 9th of July, when the atmosphere was in a similar state, the refracted forms of the ships were generally indistinct and somewhat confused; but this evening, about 9 P. M., the refracted ships, with their repeated images, were most beautifully and distinctly defined, and especially the latter, which appeared as usual, in an inverted position in the air. Of some vessels whose hulls were beyond the horizon, there were two, and of one ship three, distinct inverted images, each exhibited in a different stratum of refracted ice, one above another,—the lowest image being at an altitude of more than the apparent height of the ship's mast, above the mast-head of the original. And of two vessels there were well defined images, in an inverted position, though the ships to which they referred were not within sight! It should be observed, that the inverted images were visible on this occasion, only when an appearance of ice, produced either by reflection or refraction, occurred above the regular line of the horizon, in the quarter occupied by the ships: in the clear intervals of the lower atmosphere between the strata of refracted ice no image was seen; and when the stratum was too narrow to comprise the whole of the image, a part of it only appeared. And it should be also observed, that these phenomena were principally telescopic, both the ships and images being so distant, that, to the naked eye, they only appeared as indistinct specks. The inverted images occurred either in the south-west, or north-east quarter; but at the same time, the ships in the north-west quarter were only subject to a distortive influence;—these appeared above a cliff of ice, elevated by refraction, like oblong black streaks, lengthened out, but compressed almost to the breadth of a line.

The land also exhibited some curious appearances. In many places there were patches resembling two obtuse pyramids united by their apices, the upper one, though quite as distinct as the other, being evidently the inverted image only of the lower one. In occasional positions, where two of these double pyramids were near together, the upper limbs of the higher pyramids coalesced, so as to present the appearance of prodigious bridges, some leagues in extent, with a clear atmosphere beneath them. Sometimes these pyramids were so compressed and multiplied, that three or four were seen in a vertical series, forming so many distinct horizontal strata, joining in the middle, but all detached at the extremities.

The general telescopic appearance of these coasts, when under the influence of unequal refraction, is frequently that of an extensive ancient city, abounding with the ruins of castles, obelisks, churches, and monuments, with other large and conspicuous buildings. Some of the hills often appear to be surmounted with turrets, battlements,

spires, and pinnacles; while others, subjected to another kind of refraction, exhibit large masses of rock, apparently suspended in the air, at a considerable elevation above the actual termination of the mountains to which they refer. The whole exhibition is frequently a grand and interesting phantasmagoria. Scarcely is the appearance of any object fully examined and determined, before it changes into something else. It is, perhaps, alternately a castle, a cathedral, or an obelisk: then expanding and coalescing with the adjoining mountains, it unites the intermediate valleys, though they may be miles in width, by a bridge of a single arch of the most magnificent appearance.

The cause of these phenomena, as far as they depend on refraction, is, I imagine, the rapid evaporation which takes place in a hot sun, from the surface of the sea; and the unequal density occasioned by partial condensations, when the moist air becomes chilled, by passing over considerable surfaces of ice.

July 30th.—Being now nearly two degrees of latitude farther south than the lowest parallel in which I had ever pursued the whale-fishery to advantage, and being disappointed in our expectations of finding whales in this extreme southern station, it was mutually agreed between my father, Captain Lloyd, and myself, that we should proceed, in company, to the northward, and make extensive researches for whales in other quarters. One whale, was indeed seen, but this being in rapid motion, was neither sufficient encouragement to remain, nor to persevere into a still more southern latitude, to which my desire for further discoveries strongly inclined me.

In the forenoon, having a light breeze from the westward, we bore away to the eastward, for the purpose of doubling the chain of icebergs lying off Cape Brewster. Their number was found to be still greater than I had before apprehended. The sea, throughout an area of almost twenty miles in diameter, was almost covered with these prodigious floating bodies. At one time, I counted above 500 from the mast-head, of which scarcely any was less than the hull of a ship. About a hundred of them appeared to be as high as our mast-head. Some were certainly twice this height, or 200 feet above the surface of the sea, and several hundreds of yards in extent. One, which I had a good opportunity of estimating, was at least a mile in circumference, and 100 feet in height; three others were about 1800 feet in circumference, and 150 feet in height; and another was about 1000 feet in circumference, and 200 feet in height. They assumed a great variety of forms, and some difference of tints; but the prevailing appearance was that of cliffs or islands of chalk. In recent fractures, however, the colour is a fine emerald green, and, in cavities, where the light is transmitted through a portion of the ice, it is a brilliant blue. Many of the icebergs contained strata of earth and stones, and some were loaded with beds of rock of great thickness, and weighing, by calculation, from 50,000 to 100,000 tons. One, in particular, was observed (if it was indeed an iceberg) that was loaded to the height of a ship's mast-head with such piles of rock, that only a very few specks of ice were visible. I obtained specimens of rocks from several of these, which consisted of gneiss, basaltic greenstone, some of it strongly magnetic, granular felspar, transition clay-slate, hornblendic mica-slate, a kind of granite, &c.

The weight of some of the icebergs is enormous. One of those

abovementioned, was a mile in circumference, or 1500 feet square, and a hundred feet above the level of the sea. As it was nearly a parallelopipedon, its weight may easily be determined. Had its upper surface been exactly horizontal, the quantity of the mass below, to that above the level of the water, would have been in the proportion of 8.2 to 1; but, as there were some irregularities, the quantity of ice below in this berg may be considered as seven times greater than the quantity floating above the surface of the sea. Hence its weight must have been equivalent to a mass of sea-water of 1500 feet square, and 700 feet thick, being the quantity that it displaced. The solid content of the water displaced, equal 1,575,000,000 cubic feet, divided by 35, the number of cubic feet of water of the Greenland sea, in a ton weight, affords a quotient of forty-five millions of tons for the weight of the iceberg.

August 8th.—We were engaged all night in retracing our way back to the field we had recently left, and were still inconvenienced by the general prevalence of the fog, and endangered, while among rank ice, by a gale of wind. In the afternoon we stood to the south-eastward, until we were stopped by a chain of floes, through which we could not discover a passage. In the evening the weather moderated, and the fog increased in density to that degree, that we had no safety but in having the ships moored to the ice: the three ships were therefore made fast to a floe.

The influence of a temperature some degrees above the freezing point, with the action of wetting fogs and a little rain, had formed lakes upon the surface of the sheet of ice to which we moored, so large, that, while the fog continued, we could not see across them. Where the snow was not wholly dissolved, there was another effect of this state of the weather deserving attention, inasmuch as it cast a considerable light upon the mode of formation of icebergs, and of the enlargement of ice-fields. The upper stratum of the floe, which had originally consisted of loose light snow, was now much reduced in thickness, and formed, by the infiltration of the dissolving surface, into vertical needles, and irregular prisms of transparent ice. These prisms upon a sheet of ice, formerly examined, that was in a similar state, were five or six inches in length, and seemed to have given form one to another, the number of sides in each, like what occurs in pillars of basalt, being equal to the number of prisms or columns that come in contact with it. They seemed to have a very slight attachment to the surface of ice upon which they were found, and little or none to one another. On another mass of ice, under similar circumstances, all the snow that remained on the surface was converted into small transparent bits of ice. These, according to their situation, varied from the size of a pea to that of a nutmeg, or even of a walnut. They were somewhat globular, but, being like the prisms bounded by a varying number of planes, they seemed to have derived their form partly from the shape and number of the contiguous pieces, and partly from a tendency to crystallization. Several very perfect figures were observed, which, had they been found detached, would have been considered as ice-crystals, and their formation the sole effect of crystallization. These were in particular dodecahedrons, cubes, rhomboids, prisms, and pyramids. This conversion of snow into transparent pieces of ice, under a thawing temperature, may serve to account for

the parallel lines of air-bubbles that occur in most masses of fresh-water ice; also, for the resolution of ice into vertical prisms, when it is slowly dissolved in a proper position; for the formation of fields of fresh-water ice; and for the manner in which the icebergs receive their enlargement The enlargement of fields or icebergs, by the consolidation of a stratum of these icy nodules and crystals, admits of a very easy explanation. It is only necessary to suppose, that when the surface is still in a loose state, it is cooled down to a low temperature by a keen frost, and then visited by a wetting fog or shower of rain; in this state, it is evident, that the moisture received among the icy-crystals will be consolidated, so long as their temperature remains below the freezing point, and that even after this, if the consolidation be merely sufficient to prevent the escape of the rain-water, a recurrence of the frost will convert the whole into a solid stratum of ice.

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As I was greatly fatigued by keeping the deck most of the day, exposed to a fall of rain so heavy and incessant, as to defy every precaution for its exclusion, and to be the means of wetting me to the skin three or four different times, I retired to bed about midnight, leaving the ship in charge of the chief-mate. After two hours spent in disturbed and unrefreshing rest, my attention was attracted, by observing that the ship was twice tacked within five minutes. Alarmed by such a mark of entanglement and contracted navigation, I instantly jumped up, and slipping on a large wrapper, ran upon deck. The moment was a most important and critical one; the ship being again involved in the very "bight" out of which I had so recently extricated her, with the ice rapidly closing about her on every side. The width of the bight when I went below, (included between the loose eastern floes and a chain of floes to the westward, that was brought up by the shore,) was about two miles; but now it was reduced to a quarter of that distance. Our position in the bight was most unfavourable, being between a large floe, to the eastward, and a sheet of thin land-ice to the westward, which were fast approaching each other; and the width already diminished to 150 yards. More sail was instantly spread,—all our seamanship was called into action; and notwithstanding the narrowness of the channel and leewardly current, the ship was worked with such effect, that we were within ten yards of doubling the point lying to the eastward; but, on attempting another tack, we found the width diminished to sixty yards, which, defying all our efforts, obliged us to push into the bay-ice to the westward, and endeavour to force a passage through it. A pressure of canvass, and the best possible management were indispensable for success. Though it blew a strong gale at the time, we set topgallant-sails upon double-reefed topsails, and gave the ship every sail that her masts could sustain. Thus impelled, she accomplished an entrance into the ice, and still more powerfully urged by keeping off the wind with the yards a little squared, she continued to advance, though the ice in many places proved to be from 12 to 18 inches thick. Sometimes, indeed, our progress seeming to be suspended, occasioned the most anxious feelings of apprehension; but eventually, the exterior edge of the ice gave way under the pressure of the ship, and released us into a more navigable situation. Still, however, we were in jeo-

pardy, as in this delay we had been carried by the tide deep into the bight, where it was contracted to very small dimensions. Here the excellent properties of the ship availed us; and after a tack or two, which called forth all the dexterity of which we were capable, we happily gained ground, (though the tide or current was setting to the W.S.W., or almost directly to leeward, at the rate of nearly three knots,) and eventually doubled the point of the eastern floe, where the width expanded to nearly a league. Finding this channel also closing, we penetrated the eastern boundary, consisting of a chain of floes, through which we fortunately discovered a passage. Then stretching five or six miles to the eastward, we fell into a commodious opening amid the floes, where we were enabled to reduce sail at the moment that it was indispensable so to do, on account of a great increase of the gale. The rain continued unabated, descending almost in torrents.

Soon after we reached a place of safety, we saw the Fame following us, under a pressure of canvass that few ships perhaps could have sustained. The Trafalgar, however, though she was considerably to windward of us at the time we doubled the point of difficulty, having inadvertently stood a little to the westward of it, (the captain not being aware of what was going forward,) was intercepted by the same point on her return. All exertions to weather it afterwards, it seems, were fruitless. The tide, indeed, set so fiercely to leeward, and the bight was so much contracted, that, in a short time, she was completely hemmed in, without room to make a tack. In the morning this ship was seen at a distance, closely beset, in a situation which, in this advanced state of the season, when the ice was fast packing upon the shore, could not be considered in any light, but that of great danger; it was a situation, indeed, from which, had a strong wind from the eastward arisen, there seemed to be little prospect of escaping.

It is observable, in a personal review of the events of life, especially with those who pursue an adventurous occupation, that some of the most important circumstances appear to result from a mere simple accident, or from a change of contingencies, apparently of the most trivial nature. Thus, as an acute and judicious author observes, "the most trivial events may determine our state in the world. Turning up one street instead of another, may bring us into company with a person whom we otherwise should not have met: and this may lead to a train of other events, which determine the happiness or misery of our lives." It was such a trifling circumstance as my rising from my bed at night, without being apprized of danger (a step which it might appear romantic, to represent as having been taken in consequence of dreams of involvement and shipwreck), that became the means of our escape from a hazardous entanglement, the particulars of which have been detailed. And on this apparently casual circumstance, it was, subsequently, most satisfactorily proved, depended the ultimate *success* of our voyage, and probably our safety also. For it is very certain, that, had I remained five minutes longer below, or had any part of the great exertion we made been neglected, our future success would have been prevented, and our safety highly endangered. I do not scruple to attribute this circumstance so important to us, (for we must be permitted to consider that of importance which effectually furthered us in the chief object of the voyage) to a providential influ-

ence on the mind; my principles, my feelings, and my consciousness, all forbid me to call it accidental. Neither do I consider it right to omit this reflection, which arose out of the subsequent events of this week; for I conceive it would be a blameable and weak concession to the opinions of those who do not think with myself, to shrink from the acknowledgment of those superior influences, of a providential nature and tendency, when so many remarks of a nautical or philosophical kind, and some of these for the connexion of events necessarily of an uninteresting description, are, without scruple, admitted; and when no other observation, that has any claim to importance, is ever withheld. And if that philosophy which investigates the laws, properties, and phenomena of matter, is worthy of occupying the minds of those who stand highest in the scale of human intelligence; the philosophy of a particular providence, by which we discover innumerable marks of beneficence towards ourselves, which can scarcely fail to excite grateful feelings in our hearts towards the Author of them, *must*, in a far higher degree, be worthy of the consideration and regard of all classes of mankind.

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Friday, 23d August.—We had a heavy fall of rain in the night, with a fresh of wind at N. E.: in the morning, about 5 o'clock, it veered to N., and increased to a hard gale. As, however, the wind was directly off the side of the floe, to which we were moored, we hoped to be able to ride out the gale in safety. The first circumstance of difficulty was the sight of an iceberg "setting up" to windward, in a straight line for the ship. Perceiving, however, as it rapidly neared us, that it would pass across our stern if we could heave the ship a little a-head, we made the attempt, and succeeded. It passed within a few feet of the rudder; and, when at a very little distance, divided into two, and both parts upset with a terrible commotion. Had it broken against the ship, its effects might have been destructive. The fragility of icebergs, at this season, is well known, and their liability to break and turn over, quite notorious. In the summer of 1821 the captain of a whaler that had been wrecked in Baffin's Bay, wishing to make himself useful in the ship that he had fled to for refuge, offered to assist in fixing an anchor in an iceberg, to which it was expedient that the ship should be made fast. He was accompanied by a sailor to the berg, and began to make a hole for the reception of the ice-anchor; but almost the first blow that he struck with the axe, occasioned an instantaneous rent of the mass of ice through the middle, and the two portions fell in opposite directions. The captain, aware of his danger, the instant the ice began to move, ran up the division on which he was situated, in the contrary direction of its revolution, and fortunately succeeded in balancing himself on the changeable summit until it attained an equilibrium. But his companion fell between the two masses, and would probably have been instantly crushed or suffocated, had not the efflux of water, produced by the rising of the submerged parts of the ice, hurried him from between them, almost alongside of a boat that was waiting near the place.

The rain of the fore-part of the day, gave place, about noon, to hail, which was so sharp that it was scarcely possible to face to windward; and this was succeeded with an intermixture of soft flaky snow, that covered the deck to the depth of several inches. The wind, in the

mean time, became more and more fierce, until it blew almost a hurricane. So long as the floe to which we were moored maintained its position, we rode in tolerable safety; but, as the wind increased, it began to "slue" or revolve, until it brought the ship along side of it. As the fierceness of the gale, and the thickness of the weather, rendered it impossible for human exertion or care to keep a ship in safety underway, surrounded as we were with ice in innumerable sheets, we determined to retain our hold of the floe as long as practicable; and we were encouraged in this resolution, by observing that, about 4 P. M., the revolution of the ice had ceased, whilst the ship yet rode "head-to-wind." To be prepared for all events, however, we close-reefed the top-sails, and stowed the courses; took out "springs" from the quarters, for casting the ship; had axes in readiness for cutting the hawsers, if necessary; and made every other arrangement for providing against ordinary casualties, which my experience in similar adventures could suggest.

About 6 P. M. the snow became so thick that we could scarcely see a hundred yards distinctly, and the wind was, if possible, more furious. Two small icebergs now appeared setting towards the ship; but as they were not of a magnitude sufficient to endanger us, without auxiliary pressure, we quietly awaited their approach. The first, which was about thirty-six feet above the level of the sea, struck the ship on the starboard quarter, and turned her broadside to the wind; it then slipped clear, after obliging us to lower three of our boats to preserve them, without occasioning us any damage whatever. The second iceberg approached us with more alarming rapidity; but as we had not the power of getting clear of it, we were obliged to receive the shock upon whatever part of the ship it might chance to fall. It came in contact with the rudder, and slightly bruised one of its timbers; then grazing the ship's quarter and broadside, it passed forward to the bows, and being fortunately kept from close contact aloft, by a tongue projecting from its base, it cleared all our boats, and occasioned only a trifling injury to some of the skeeds in its progress. At this juncture, when the ship was so much involved with icebergs as to render casting off impracticable, had the state of the weather permitted it, two floes came in sight from different quarters. One of these appeared to be rapidly closing upon us from the west, and the other from the south, which, with the floe that we were moored to, occupying the eastern quarter, almost completely locked us in. To secure ourselves as far as possible against the crush, which now appeared certain, we fastened, by a hawser, a large heavy piece of ice ahead of the ship, where the floes threatened the first contact; with the view of subjecting the interposed mass to the pressure, and with the hope of being then defended from partaking of it. The last iceberg that passed yet annoying us, we slacked the ship astern until it was quite clear ahead, and had placed itself across the bows, with the deceitful appearance of affording an additional safeguard. As we became more and more exposed to danger from the floe setting up from the southward, as we slacked the ship down, and at the same time retreated from the protection the pieces of ice ahead seemed to promise,—it appeared to me that the nearer the ship was kept to these, so long as they were fairly clear, the greater would be our safety. But an unfortunate revolution among the ice disappointed these expectations, and overcame all our

precautions. The first shock of the floes was sustained, as we had expected, by the mass of ice that was expressly placed near the ship for the purpose, and for some time afterwards, all things seemed quiet and safe. Suddenly, however, the pressure was renewed, in consequence, as was presumed, of some new stoppage to the drift of the floes, with tenfold violence. Our barrier was squeezed deeply into the floe, and prodigious blocks of ice were broken off, and reared up by the pressure. While we contemplated these mighty effects with much anxiety, the berg ahead of the ship began a revolving and a retrograde motion, so quick, as to overtake us before we could get the ropes off to slack astern, and suddenly nipped the ship on the larboard beam and bow, against the floe by which we rode. The force was irresistible. it thrust the ship completely upon a broad tongue, or shelf under water, of the floe, until she was fairly grounded, and continued to squeeze her rapidly up the inclined plane formed by the tongue, until the ice came in contact beneath the keel. This was the work of a few moments, and in ten minutes all was again at rest. When the pressure ceased, we found that the ship had risen six or eight feet forward, and about two feet abaft.

The floe on the starboard side was about a mile in diameter, and forty feet in thickness, having a regular wall side of solid ice, five feet in height above the sea; on the tongue of this the ship was grounded. The iceberg on the larboard side was about twenty feet high, and was in contact with the railing at the bows, and with the gunwale and channel-bends amidships. This berg was connected with a body of floes to the westward, several leagues in breadth. The only clear place was directly astern, where a small interstice and vein of water was produced, by the intervention of the bergs. Any human exertion for our extrication from such a situation, was now in vain; the ship being firmly cradled upon the tongues of ice, which sustained her weight. Every instant we were apprehensive of her total destruction; but the extraordinary disposition of the ice beneath her, was the means of her preservation. The force exerted upon the ship, to place her in such a situation, must evidently have been very violent. Two or three sharp cracks were heard at the time the ship was lifted, and a piece of plank, which proved to be part of the false keel, was torn off and floated up by the bows, but no serious injury was yet discovered. Our situation, however, at this time, was almost as dangerous and painful, immediate hazard of our lives excepted, as possible. Every moment threatened us with shipwreck; while the raging of the storm,—the heavy bewildering fall of sleet and snow,—and the circumstance of every man on board being wet to the skin, rendered the prospect of our having to take refuge on the ice most distressing. Our only hope of safety in such a calamity, was the supposed proximity of the Fame. Yet we well knew that she must also be in danger; and, perhaps, in a situation as bad as our own. We could look to no other refuge; since we had reason to apprehend, that the whole of the Greenland fleet, with the exception of a single ship, had left the coast, and proceeded either homeward, or at least to the skirts of the ice. Even in the event of the safety of the Fame, as she was not near us, nor had we any conception of her position, we could not have obtained protection from her before a change of weather; and, in the mean time, exposed to such a storm, without the possibility of erecting tents for

our shelter, it was to be feared that many of our crew would have sunk under the inclemency of the weather. Impressed with this apprehension, the people not being required to attend to any duty in the immovable state of the ship, employed themselves in making preparation for the catastrophe that seemed to await us.

We remained in this state of anxiety and apprehension about two hours. On the one hand, we feared the calamity of shipwreck; on the other, in case of her preservation, we looked forward to immense difficulties, before the ship so firmly grounded could be got afloat. While I walked the deck under a variety of conflicting feelings, produced by the anticipation of probable events, and under the solemnising influence natural to a situation of extreme peril, I was suddenly aroused by another squeeze of the ice, indicated by the cracking of the ship and the motion of the berg, which seemed to mark the moment of destruction. But the goodness of the Almighty proved better to us than our fears. This renewed pressure, by a singular and striking providence, was the means of our preservation. The nip took the ship about the bows, where it was received on a part rendered prodigiously strong by its arched form, and the thickness of the interior "fortifications." It acted like the propulsion of a round body squeezed between the fingers, driving the ship astern, and projecting her clear of all the ice, fairly afloat, with a velocity equal to that of her first launching!

Fortunately the ropes and anchors held until her stern-way was overcome. As soon as she was brought up, our attention was instantly turned to more dangers; and our previous state of anxious inaction instantly gave place to the most persevering and vigorous exertions for our preservation. Hitherto, while the floes were in contact about the ship, there had been a clear vein of water leading directly to leeward, in which it appeared that the ship might ride, under the protection of the icebergs, in safety. But two points of the bounding floes, betwixt which the ship lay, were now observed to be rapidly closing upon us, and threatening us with another squeeze. As the channel running to leeward was so narrow, that there was not room to swing the ship so as to get under-way, our only chance of safety depended upon our being able to drop to leeward with a considerable velocity. Though we had little hope of accomplishing this under such a gale, without some of the ropes or anchors giving way, which would have been almost certain ruin, yet having no other resource, we were obliged to undertake the risk. With all imaginable care and prudence, we began to slack astern, using two hawsers on an end for greater despatch; these carried us past the nearest points, at the moment when they had closed within two or three feet of the breadth of the ship. In five minutes they were in contact, and some hundreds of tons of ice gave way, and squeezed up under the pressure. Before another rope, that had been employed in aid of the hawsers, could be disengaged from its anchor, and replaced near the ship, for continuing our movement to leeward, other two points of the floes appeared astern in rapid approximation. Remaining where we were, though but for five minutes, was inevitable shipwreck; and to trust to the strength of a warp of five inches circumference, the only mooring rope we had now at command, afforded but small hope of a better fate; for, in the event of the ship breaking adrift, as there was not breadth between the floes

to swing, she must fall astern with such a shock against the ice, as could scarcely fail to be destructive. Possible safety, however, was preferred to certain destruction. We now slacked astern by the warp fastened to the second hawser, which, to our astonishment and delight, sustained the prodigious strain; and although it was not capable of bringing the ship up, yet it so far resisted her velocity, that at the moment when it came to an end, a hawser, that was meanwhile hauled on board, was fastened to another anchor placed for its attachment, whereby the motion astern was suspended. On this occasion, we again escaped the nip by only three or four feet, and the floes came in contact with unabated violence, scarcely a ship's length ahead. But more and more approximating points appearing astern, we dropped the whole length of our last hawser, with the hope of avoiding them; but it only carried us clear of the first. We were then brought to a stand; for the other hawsers and warp, forming a continuous line of 700 yards in length, got entangled, and nipped by the floes, so that we were under the necessity of slipping the end and fastening it to the ice. As we had now no rope left of sufficient strength with which to shift the hawser, our progress would have been suspended, and our previous exertions rendered nugatory, had we not brought into use a small mooring chain that was fortunately at hand. Before the hawser was again fastened, however, the hook of the chain broke, and the ship was entirely adrift. But it providentially happened, that the people who were on the ice having seized upon the end of the hawser, were enabled to cast it over an anchor that an officer was engaged in setting, at the very last moment that could have served for our preservation! The severe strain to which this hawser was subjected, broke one of its strands, and called for the instant renewal of the chain. This was a most narrow escape; but there was another that succeeded which was equally striking. When slacking astern by the hawser, the ship swung alongside the eastern floe into a little bight, and the rudder unfortunately caught behind a point which projected some feet to windward. The floes were so nearly close, that we had not time to heave ahead, had this measure been practicable under such a storm. We were in a state of extreme jeopardy. One of the after-sails was instantly loosed, and hauled over to the starboard quarter; the action of this, happily coinciding with a momentary diminution of the wind, when the tension of the ropes drew the ship ahead, turned her stern clear of the point. We instantly slacked astern and dropped beyond this danger.

It might be tedious to describe all the subsequent exertions made for our deliverance, under the repeated difficulties we encountered. These difficulties will be readily appreciated by persons acquainted with the management of a ship, when they are informed, that our movements, to a considerable distance, were effected by means of a stranded (or partly broken) rope, and a doubtful chain, at a time when the wind blew with such violence, that I could scarcely make myself heard with a speaking trumpet from the companion to the windlass. It may be sufficient to say in addition, that by a most striking and remarkable providence aiding our exertions, suggesting precautions, and timing our various removals, we continued to drop the ship down the narrow dangerous channel betwixt the floes, until their approximation ceased. Thus was the ship most miraculously preserved,

throughout a removal of a mile, under the most dangerous, difficult, and discouraging circumstances, when there was not a single spot in all the distance that we accomplished, in which a ship remaining five or ten minutes after we left it, could have been saved from being crushed. The reason of this was evident. The two floes betwixt which we were involved, though full of little prominences or points, were, in the main, of a circular form. As these were revolving against each other in contrary directions, like the action of a pair of toothed wheels, when one is put in motion by the other, every part of the circumference of each floe became in its turn the point of contact.

These anxious and energetic operations continued until midnight, when we obtained the first respite, on observing that the floes had ceased to revolve. But we were still in jeopardy. A large body of ice having been drifted by the violence of the gale against the floe that we were moored to, urged it so rapidly to leeward for some time, that the southern ice, to which we were now exposed, began to set up with alarming velocity. Nothing dangerous, however, came in the way during the continuance of the gale; and, to our great comfort, about 4 A. M. the weather cleared up, and immediately began to moderate.

By this time our people were so much exhausted by fatigue, that on undertaking the recovery of our ropes, which cost a labour of some hours, several of our able seamen withdrew from their duty, making a sacrifice of their character and hopes of preferment, and exposing themselves to the loss of their wages, for the sake of the indulgence in a little rest.

After recovering all our ropes, we cast-off from this place of peril, and made sail to the eastward, into ample room. We were rejoiced to find, that the ship was not rendered leaky, by the coarse treatment experienced; and that no damage, either inside or without, of any consequence, could be discovered. The Fame was not in sight when we got under-way, and I was greatly anxious respecting her. Shortly afterwards, however, to our great satisfaction, the Fame was discovered standing to the westward, and apparently safe; but not so the Dundee, the only other ship near,—this vessel, when seen, proving to be dismasted. The Fame joined company with her, and was observed to be employed in towing her out from among the land-floes.

We joined both these vessels in the night, and learned that the Fame, like ourselves, was exposed to considerable danger; but fortunately, being able to keep fast to the ice all the gale, escaped without any material damage. The extraordinary violence of the wind was fully proved (had such proof been necessary), by its effects on the Dundee. This ship was under-way at the commencement of the gale, and, under close-reefed topsails, foresail, &c. attempted to get to the eastward of some floes under her lee, for the purpose of obtaining a wider navigation, at a greater distance from the land. The main-staysail and mizen-topsail blew to pieces, and shortly afterwards the bowsprit was carried away, and was followed by the foremast and main-topmast. In this disabled state she drifted between two floes. Fortunately falling under the lee of one of them, into a sheltered situation, she was secured to the ice, and wonderfully preserved. At the conclusion of the gale, they made a signal of distress, that soon brought the Fame to their assistance, which dragged them out of their

hazardous position among the land-floes, into a commodious opening, a little to the eastward. They lost all the wreck of their masts, sails, and rigging, and some of their boats; but the hull of the ship being uninjured, the crew now commenced, with the help of materials from the Fame, to refit with jury-masts.

On the 25th, being Sunday, we made fast, along with the Fame, for the purpose of honouring the Sabbath day. Our recent extraordinary deliverance from threatened shipwreck, called for our united thanksgivings to Almighty God; and as the circumstances were most strikingly providential, they produced an impression on the minds of the sailors, of a very devotional and solemn description. The weather was fine and calm, with bright sunshine; so that we experienced no interruption to our religious services.

Narrative of the Shipwreck of certain Dutch Vessels, in the year 1797, in the Seas east of Greenland; from a late number of the "Annales Maritimes."

The Wilhelmina, commanded by James H. Broerties, from Laadam, sailed from the Texel, April 14, 1797, for the whale-fishery. June 22, they arrived near the eastern coast of Greenland, alongside of vast plains of moving ice, that overspread the sea. They cast anchor, and made preparations for the fishery. Fifty other ships had repaired to the same ports, attracted by the great number of whales frequenting them: the Wilhelmina took one the day after their arrival.

June 25, huge flakes of ice environed and pressed on the ship on all sides. The crew then, for eight days and nights together, had to cut and saw their way through the ice, thirteen feet in thickness, trying to get the ship clear.

A number of vessels, that lay at anchor, east of them, were fortunate enough to escape; but the Wilhelmina, and twenty-seven others, were fast in the ice. Seventeen, however, afterwards made their way through it.

July 25, the icebergs began to separate, and left a sort of opening. On this the captain instantly set the boats to towing the vessel. After hard and incessant rowing for four days, they found their passage intercepted by another field of ice; and here they were shut up, as it were, within a small basin. Four other ships were found here, that had struggled through numberless difficulties and dangers, but with as little hope of deliverance. Their perilous position now alarmed the whole crew. The north wind driving the ship southerly, they came to within sight of Gale Hanken land. This is a bay on the east coast of Greenland, in 75° N. lat. and 7° 5′ long. E. of Paris. The ice showing no glimpse of any opening, the captain determined to shorten each man's allowance.

August 1st, the ice was driven so forcibly against the ship, by a rough wind, that there was the utmost danger of being crushed by it; with but little intermission of labour to the crew, and scarcely an interval of repose.

On the 16th they descried four other ships approaching them, but in a state no less critical. On the 19th a terrible storm drove the ice-flakes with such force against the ships, that one, from Amsterdam, was very much damaged. The Wilhelmina, just able to keep afloat, was shattered and almost broken up, five or six feet above the water-line.

August 20, shipwreck appeared inevitable; a terrible hurricane did much damage to the ships. One from Hamburgh was beat to pieces, and the ice continued to accumulate to the height of twenty-four feet above the others. The Wilhelmina, after losing her two small boats, an anchor, and part of her rigging, was driven against another ship from Zaadam, commanded by Claas Janz Castricum. Two out of five vessels were already lost: Castricum's had many leaks; the two others were less damaged. The crews of the other vessels were distributed among these, with all the provisions and other effects that could be saved.

August 25, the three remaining ships were immovable in the ice. The captains despatched twelve men to four other ships, at some distance, in the same position as themselves. From these they learned, that two ships had been crushed by the pressure of the ice, and that two others were in a truly deplorable state. Two Hamburgh vessels, somewhat more distant, had perished in a similar manner.

Though locked up in the ice, the ships kept driving before the wind. On the 30th of August they had sight of Iceland. Two days after, a part of the ice was so agitated, that two captains, profiting by the circumstance, in all likelihood gained the open sea, as they soon lost sight of them.

Though the Wilhelmina was hourly threatened with destruction, it was the 13th of September ere it took place. On that day a mountain of ice came suddenly rushing down against it, with a prodigious noise, crushing every thing in its way. So sudden was the accident, that the sailors in their hammocks had not time to dress, and were obliged to escape half naked over the ice, exposed to all the injuries of the weather. With great difficulty could they save any provisions, for the ship was intersected, as it were; one part being about ten feet above the surface of the water, and the other entirely destroyed, or buried under an enormous heap of ice.

In this way another ship had been overwhelmed and lost on the 7th of September. The crew fled for an asylum to the ship of Capt. Castricum; with much toil, they had stopped up all the leaks, and in other respects the ship was in good condition. But the crew had no small trouble to reach the Castricum. The ice was not uniformly solid; clefts and crevices, opening under their feet, exposed them to the risk of a fresh wreck. At length they set up a tent on a solid part of the ice, and, to guard as much as possible against the excessive cold, they kindled a fire with the wrecks of the ship. Relying with confidence on the Divine Providence, they expected relief, though it must obviously come in some extraordinary way. One inconvenience, as may readily be conceived, would intrude upon their wretched asylum; the heat of the fire melted the ice, and they had to dig holes in different places, to get rid of the water: without this precaution they must have been continually shifting their habitation.

Some rest, which these unfortunate men enjoyed in the night, served to reanimate their courage. Next day they redoubled their efforts to reach the Castricum. A flame in motion, that was on its mainmast, indicated its liberation from the ice; a sight of this rekindled their ardour. The three shipwrecked captains, Broerties, De Groot, and Volkert Jansz, proceeded each at the head of their crew. Their route was very dangerous; for they were obliged to leap from one ice-flake to another, and, every time, ran no small risk of plunging into the water.

On the 1st of October they judged they had arrived at the end of their sufferings; but a frightful scene opened, that almost drove them to despair: the vessel was in a condition much more deplorable than before. It had been carried to a considerable distance; every moment it was in danger of being crushed by overhanging ice: at last, they were fortunate enough to reach it. Scarcely were they on board, when there came up fifty men of the crew of the Hamburgh ship, that had been lost on the 30th of September. The harpooner, with twelve sailors, were drowned, in trying to reach Iceland on floating fragments of the wreck.

As well as these unfortunate men were able to judge, they were then in 64° N. lat. A new misfortune threatened them: the provisions on board the Castricum were too scanty to suffice for all who had repaired to it; they were soon exhausted, and these destitute mariners were obliged to feed on pieces of flesh left on the skeletons of the whales. They then fell to eating the dogs that had been in the vessels that were lost. To quench their thirst, they drank snow-water, wherein was an infusion of chips. They were now looking for death to terminate their sufferings, when the ship, that kept still driving towards the coast, came within the distance of five or six miles from the Continent. Several sailors tried, but in vain, to reach the land; they found, however, a desert island, where they gathered some blackberries off the bushes: they were obliged to remain there.

On the 10th of October, a tempest arose, which threatened the ship with instant destruction: it was still preserved, however, by the crew. The next day, enormous ice-flakes fell on the ship, so as to crush, and in a manner overwhelm, it. This accident was so sudden, that the men on board could save nothing to make a fire with; they had only time to collect some sails, and bring together eleven small boats: but these precautions were useless; their safety lay in flight, and in running from one ice-flake to another, to find one solid and large enough to hold them all. No language can describe the wretchedness of their situation. Exposed to all the rigours of cold, on an immense island of ice, which was liable every instant to be dashed to pieces, almost entirely destitute of food and clothing, they could only expect dying of hunger and cold, or of being buried under blocks of ice.

It is only at the last extremity that hope abandons man. These sufferers, unwearied in their exertions to save their lives, set up two tents with the sails which they had saved; wherein they had shelter, patiently waiting for the will of Providence: but, after the 13th of October, they were under the necessity of quitting the mass of ice that supported them, as it was drifting out to sea. Then 250 men set out on a trial to reach the Continent; thirty-six others, who reckoned it

impossible, remained on the ice. Those who ventured to go, being of different opinions as to the route to be taken, separated into different companies. The Captains Jansz de Groot, Hans Christiansz, and Martin Jansz, accompanied by forty sailors, set out on the 13th of October. Each man had thirty biscuits for his whole stock of provisions. After a short, but very toilsome, march, they arrived on the shore of some island, where they passed the night. On the following day they were for trying to get at the Cóntinent, but were disappointed; their way being partly obstructed by an immense quagmire, or floating marsh. To their great surprise, they found some inhabitants; and it was fortunate that some of the mariners understood their language. Assistance was implored, and these savages, generally considered as inhospitable, were very ready to afford it, removing the shipwrecked crews in their canoes to their huts, and helping them to some dried fish, to the flesh of seals, and to some vegetables, to appease their hunger.

They spent several days with these their benefactors; but, fearful of encroaching on the laws of hospitality, by consuming all the provisions, they resolved to continue their route, in hopes of finding a Danish colony, where they might obtain relief adequate to their necessities. In their long and wearisome march they passed through different tribes of the Greenlanders, with some of whom they had a kind reception, but from others they had ill treatment; being frequently, also, in danger of perishing by hunger and thirst. A little moss, scratched from the surface of the rocks under the snow, and the raw flesh of the dogs which they killed, added to that of a few animals which they caught, were the only resources within their reach. At length, after numberless accidents and fatigues, they arrived on the 13th of March at Frederickshaab, a Danish settlement, where they experienced a truly generous treatment, and all possible aid was administered to them. Here they remained till they could get their health re-established, and embark for Denmark. At last they were fortunate enough to arrive in Holland.

The Captains Castricum and Broerties, with such as had taken their route to the north, arrived in like manner, without any particular accident, at Frederickshaab; with the exception of Broerties, who died on the road.

Their companions in misfortune, who could not come to a resolution of joining them, had preserved a canoe, and a small quantity of provisions. The mass of ice on which they were, was driving towards Staatems Hock; it would not bear them much longer, as the sea was rolling, and, with the movement, the ice was gradually diminishing: in fact, they were in the greatest danger of being lost. In that crisis, the wind changed to the north-west, and thereby enabled them to reach the land without difficulty. On the 6th of October, they found a small boat, which the crew of the Castricum had abandoned, and a man in it, who, being unable to accompany the rest, was only looking for death. On the same day, three of their comrades, that had been left behind, overtook them, having been obliged to abandon an old man on the extremity of an ice-flake, where he must have perished. They all, however, embarked, and were long tossed up and down before they could reach Greenland. The savage tribes were hospitable, sharing their wretched

provisions with them. They, at last, also arrived at a Danish settlement, where provisions were in no great plenty: but they were kindly entertained with the best. At Holsteinberg (lat. 67°) they learned, that a ship, belonging to the King of Denmark, was at anchor about two miles from the shore. The ship was obliged to winter here, and to proceed on the fishery in the spring, before they could return to Denmark. The shipwrecked sailors sought and procured employment on board, and, after a prosperous voyage, were conveyed to Denmark, whence, finally, they obtained a passage for Holland.

Out of 400 men in the ships that were lost, only these 140 were saved.

FROM THE REVUE ENCYCLOPEDIQUE.

Second Journey of M. Frederick Cailliaud in Nubia, and the Kingdom of Sennar.

M. Cailliaud embarked at Marseilles (on his second voyage,) Sept. 9, 1819, in company with M. Letorzée, and returned to France on the 10th of December last. He has traversed all the known Oases, and ascended the Nile to the 10th degree of latitude!

At the time of his arrival in Egypt, Mohammed Aly was projecting an expedition into the higher regions of Nubia: his son, Ismael Pacha, was to command the army; and M. C. who was well known to the viceroy, was allowed to accompany it. He accordingly joined the vanguard; and, departing from Daraou, in November, 1820, arrived, Jan. 5th, of the following year, at Dongolah. On the 8th of February he had advanced to Mount Barkal, in the country of Chaguy: there, among a multitude of ruins, are several temples, and a great number of pyramids. At Chendy he was enabled to ascertain the geographical position of the river Athara, the ancient Astaboras; and arrived, at length, at Assour, not far from the seventeenth degree of latitude. Here he discovered an ancient city, with considerable ruins; its position coincides exactly with that which ancient authors assign to Meröe. Eighty pyramids have been raised there, and there is little reason to doubt that this was the ancient metropolis of the Ethiopians.

Between the fifteenth and sixteenth degrees of latitude, he ascertained the efflux or mouth of the Bahr-el-Abgad, or the White Nile; as also the Bahr-el-Azraq, or the Blue River, called also the Abaouy. The former of these arms is the most considerable; it comes from the west, and doubtless issues from the higher regions, called the Mountains of the Moon.

He arrived, at length, in Feb. 1822, at Singué, a country situated between the two branches of the Nile, with Mahometan inhabitants; though there are Pagans, that worship trees, the moon, and stars, in the kingdom of Bertat, fifty leagues more to the north. It was at Singué that Prince Ismael stopped, and it terminated the career of M. Cailliaud's expedition. A fatal distemper was making havoc in the army; eight Europeans had fallen victims to it: there were mountains

to be scaled, and forests to be penetrated, often dangerous from wild beasts. The inhabitants, also, no less savage, were ever raising up fresh difficulties to oppose the advance of the Egyptians.

In this excursion, M. Cailliaud advanced to as great a distance from Meröe, as Meröe is from Egypt. No European traveller had arrived so near the equator on that side: Brown stopped at 16° 10′, and Bruce at the eleventh degree.

Through the whole of the countries which they traversed, M. C. and his companion were enabled to make observations interesting to geography, astronomy, and physics. They frequently took the height and longitude of the Pole; attentively marking, also, the variations of the needle, the nature of the soil, the climate, and its temperature. As to the course of the Nile, they traced it, as it were, step by step,—ascertaining its numerous cataracts, and, among others, that in the country of Chaguy, which, in fact, consists of a long ledge of cascades, through an extent of forty-five leagues. The mountains also were noticed and described, together with the animals and vegetable productions.

Plans and designs have been taken of all the monuments situated above the second cataract. Between Chendy and Gerry, at some distance from the river, M. C. discovered, very recently, extensive ruins, the circumference of which includes 2500 feet; beyond that the ruins of Naka, and, further on, those of Soba: all these were measured, and notices of them recorded. And thus the empire of Meröe appears to have had a number of flourishing cities unknown to the Greeks. These new discoveries will enable us to appreciate the accounts in ancient authors. Now that the country begins to be better known, it will not be difficult to measure the three thousand stadia of the Isle of Meröe, between the rivers which represent the Astosaba, the Astapus, and the Astaboras.

As a prelude to these discoveries, MM. Cailliaud and Letorzée ventured on a bold excursion to the Oasis of Syouah. About the end of 1819, they set out from Fayoum, with a few companions; and, after fifteen days' march through the Libyan Sands,—wherein they had to combat with the Arabs,—they arrived at the Temple of Omen-Beydah (Ammon); here they ascertained (as Brown had done,) its latitude and longitude, and, moreover, took the requisite measurements.

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